Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL AND OTHER IMPROVEMENTS.

VOL. XIII. NEW YORK, APRIL 24, 1858. NO. 33.

THE
SCIENTIFIC AMERICAN,
PUBLISHED WEEKLY
At No. 128 Fulton street, (Sun Buildings,) New York,
BY MUNN & CO.

O. D. MUNN, S. H. WALES, A. E. BEACH.

Responsible Agents may also be found in all the principal cities and towns in the United States.

Sampson Low, Son & Co., the American Booksellers, 47 Ludgate Hill, London, Eng., are the British Agents to receive subscriptions for the SCIENTIFIC AMERICAN.

Single copies of the paper are on sale at the office of publication and at all the periodical stores in this city, Brooklyn and Jersey City.

TERMS—Two Dollars per annum.—One Dollar in advance, and the remainder in six months.

☞ See Prospectus on last page. No Traveling Agents employed.

Cooling Rooms.

The warm weather will shortly be here, and every one will be seeking the refreshing influence of a cool and shady place, whereunto they can retreat from the blazing sun; so we will give our readers a few hints concerning the cooling of their houses. The first necessity is a thorough draft. This can always be obtained by opening every door and window in the basement, the top of every window above, and by throwing each door wide open; but above all, be sure that the trap door in the roof is open, and there is plenty of air room from it down the stairs, so that whichever be the direction of the wind, there will be at least one ascending current of air in the house. Another requisite is shade. Our common slat shutters answer well for the windows, but the most cheap and convenient shelter for the roof is to cover it thickly with straw, dried reeds, or rushes. These will resist the influence of the noonday sun, and keep the garret almost as cool as the basement. One of the most simple methods, and at the same time cheapest means of artificially lowering the temperature of a room is to wet a cloth of any size, the larger the better, and suspend it in the place you want cooling; let the room be well ventilated, and the temperature will sink from ten to twenty degrees in less than half an hour.

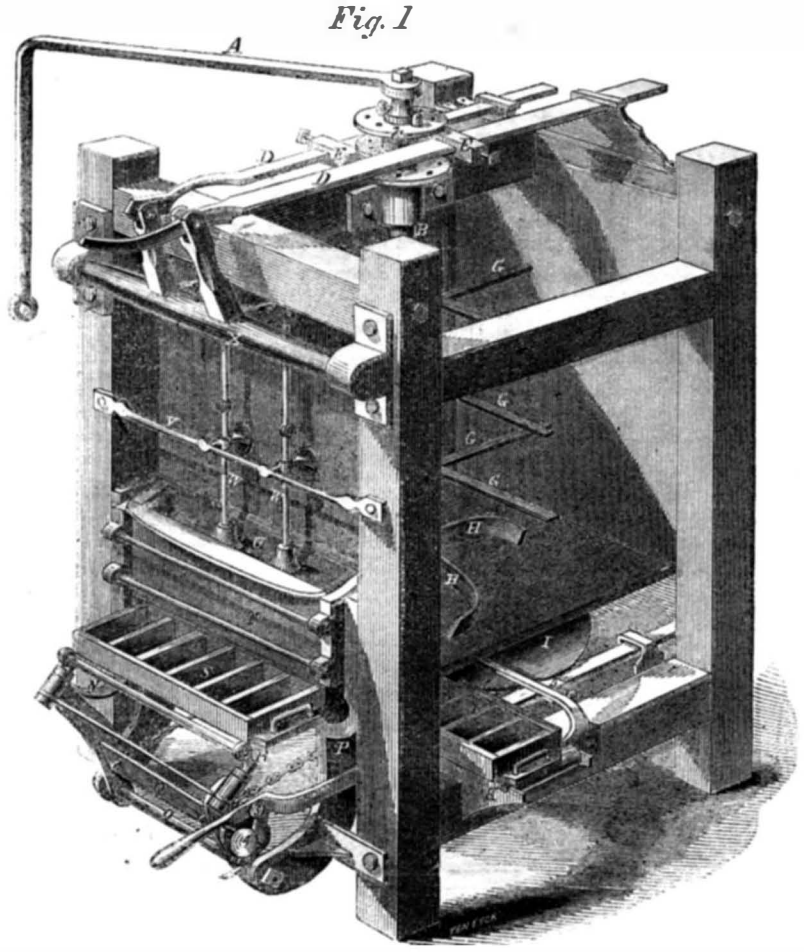
The above hints will be useful to many, and as a last suggestion we will inform the reader that, in summer, it is well to keep a solution of chloride of lime in the house, and occasionally sprinkle it in the more frequented parts, as the passages and stairs.

Cleansing Printed Cotton Fabrics—Calicoes.

A patent has been secured by Jas. Goodwin and Andrew Boyd, of Milton, Scotland, for a singular mode of cleansing printed goods from dirt and extraneous colored matters that may have been diffused over their surfaces during the process of printing. The invention consists in taking the cinders of mineral coal or coke, but the former are preferred, and sifting them to separate the ashes and dirt. The sifted cinders are then placed in a suitable copper vessel or boiler, with boiling water, and the printed calicos after being first washed in cold water to remove all the dirt possible, are introduced into this boiler and boiled for an hour, when they are taken out, washed in cold water, dried, and are then fit for calendering. This process of cleansing newly printed calicos in printworks is stated to be an improvement which deepens the colors of the dyed parts of the goods, clears the light or white parts, and is a superior and cheap substitute for soap and other chemicals now employed for the same purpose. It has generally been supposed that the ashes, and especially the cinders of mineral coals, have no detergent qualities, but this novel application of them goes to establish a contrary opinion.

CARNELL'S BRICK MACHINE.

Fig. 1



This machine is intended to temper the clay and make the bricks, within the limits of the one machine, and it is provided with a box large enough to contain sufficient clay to supply it for a day. This box is filled over night, and the clay left in soak until the morning, when the machine is worked by horse power or steam. Our engraving, Fig. 1, represents a perspective view of the whole machine, which we will now describe.

A is a beam crossing the top of the machine; this must be kept high enough to clear the arms that press the clay, and to the ring in this is attached the horses or oxen; when steam is used, this is dispensed with, bevel or spur wheels taking its place. B is a shaft passing perpendicularly through the box, having on the top, C, a three-plate piece with twelve holes in it, six in each division, for the purpose of regulating the pressure and the number of bricks to be made by each revolution of the machine, and to accommodate the slot piece, 2, Fig. 2, which draws the molds under the grating, and carries those that have been filled to the side; D D are two levers passing across the top of the machine, resting in guides with friction rollers; E E are two lug pieces fastened with set screws, and so arranged as to give the plunger box any desired movement; G G G G are a number of knives on B, for the purpose of cutting and tempering the clay; H H are four pushers fastened with a wedge, to push or force the clay into the plunger box.

Beneath the hopper box is a table, I, which revolves with the shaft, B, and brings the molds, S, out at the side—this table should be placed about one-eighth of an inch below the mold—which D draws from under the grating, and it should be fastened on the shaft, B, with four set screws, so as to be raised or lowered; an arm with a roller passes across the top of the table, which prevents the molds from revolving further than the post, see Fig. 2. J is a lug piece beneath the table, with six slot holes, having an arm or arms, this arm is placed in one of the slots arranged with pins; it revolves with the shaft and draws D in. The arm or arms should be so placed in the holes that while the molds are being drawn from under the grating, the plunger, U, is standing still; 5 is a lug

Fig. 2

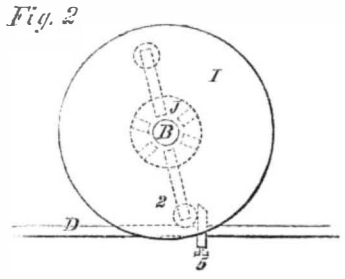
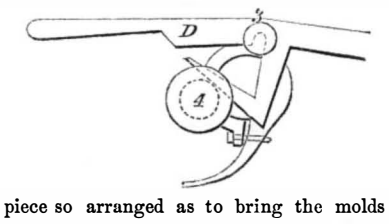


Fig. 3



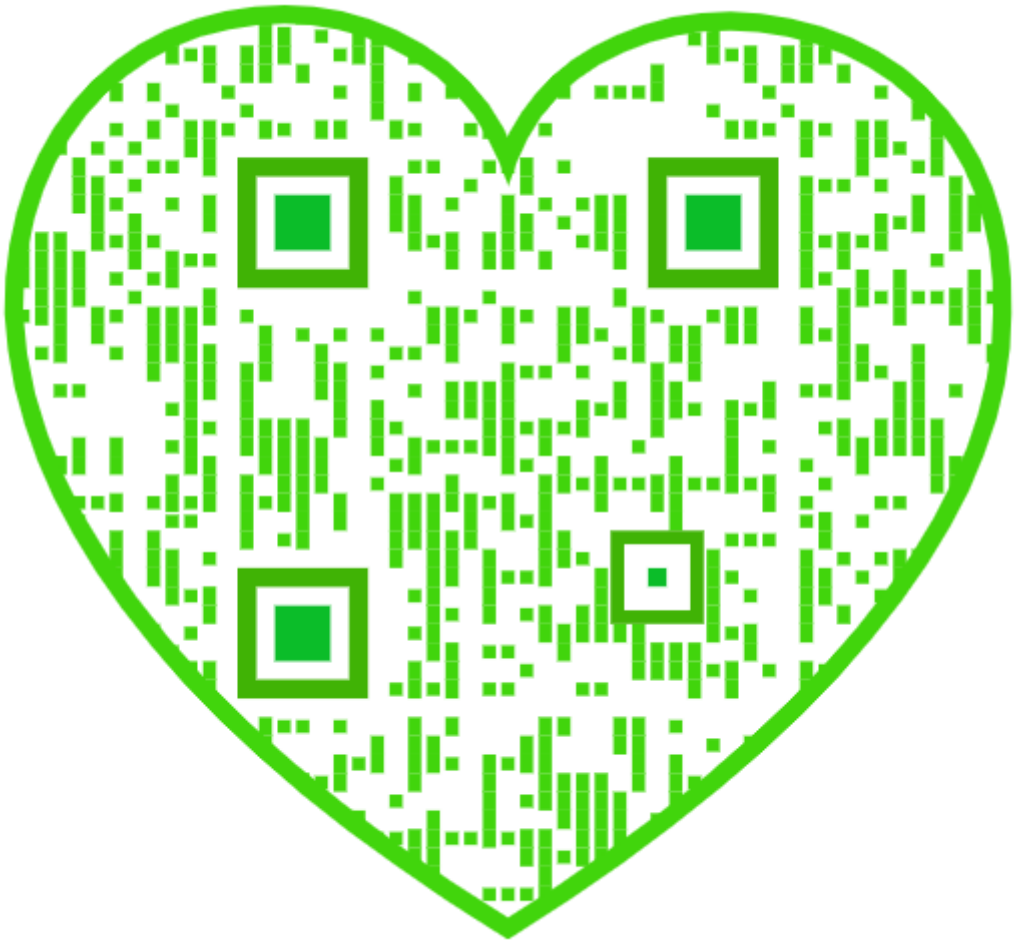
piece so arranged as to bring the molds in their proper place; K is a table on the side with three rollers regulated with the hight of the table for resting the molds on; 3 and 4 is a slip clutch attached to the lower rockshaft, which draws the molds under, and fastened on by stud bolts together in two semi-circular pieces; D, Fig. 3, hooks in 3, and when stones get in between the grating and the mold, S, it draws 3 tight to the molds, and should there be any strain, 4 revolves and unhooks, and the machine goes on working, and the clay goes back into the hopper without making bricks until the obstacle is removed. N is a spring on the lower rockshaft, so arranged that when D draws in sufficient to bring the molds in their proper place, it throws the rock shaft immmediately back, and leaves it standing still seven-eighths of the time, giving the operator ample time to place his molds upon the carriage. O is an axle which passes across the lower rockshaft, regulated by screws in each side; P are supports for the axle of the apparatus, Q, which pushes the molds under the plungers upon the table, R. S is the mold box. There is a box in front of the machine kept two-thirds full of sand, (which should be clean and free from dirt and as fine as can be got,) in which the molds are immersed, they being first soaked two or three hours in water, so that the sand will stick to them. Being well sanded, they are then placed on the carriage between the two washers on the rockshaft, which always guides them under the grating to their proper place. T is the plunger box which has a plate in the front with grooves on each side for the purpose of taking the clay or substance out. There is a grate on the bottom which slides in grooves on either side, so arranged as to be drawn out and others placed in for the purpose of making different shape bricks; this must be so arranged as to suit the shape or size of the molds—as the clay is always pressed through the center of the grate, and the clay being pressed through small surfaces shields the sides of the molds and prevents the sand from being rubbed off. U is the plunger follower, which fits inside of the plunger box and presses the clay into the molds, tightened by two cross rods, and on the back by a wedge in case it gets loose or wears; V is a cross rod or guide for the plunger rods, W W; X is a heavy rockshaft on top for the purpose of pressing the clay into the molds. The molding parts and plungers are thrown out of gear for the purpose of grinding the clay when first starting the machine, or for any other purpose. The whole machine is operated by two simple levers. This machine is put together by sixteen wood screws, the frame is mortised and substantially put together. A large number have been put in use, and there has been no difficulty in working the machine, and no complaint made about its not giving good satisfaction—this is a rare thing for brick making machines. When the machine stands three or four days, it should be entirely cleaned out. It should be placed in the center of the floor, so that the bricks can be carried all around, say from 100 to 150 feet—the bricks can be taken away from the machine by wheelbarrows, railroad, or by hand.

Any brickmaker will be able to judge of the qualities of the machine from the description and engravings, and we have no hesitation in saying that it is a serviceable and compact machine. It is the invention of Charles Carnell, of Germantown Road, above Fifth street, Philadelphia, Pa., from whom machines or any information can be obtained. It was patented February 2nd, 1858.

Gas-light in American Cars.

Several cars on the New Jersey Railroad have been lighted with gas as a matter of experiment, and with such satisfaction, it is stated, that all the trains are to be furnished with it permanently. Cylindrical reservoirs are placed under the floors of the cars, and these are charged, from a supply gas pipe at Jersey City, with a quantity sufficient to give a bright light for fifteen hours.

© 1858 SCIENTIFIC AMRICAN, INC.



Issued from the United States Patent Office

FOR THE WEEK ENDING APRIL 13, 1858.

[*Reported officially for the Scientific American.*]

AWLS AND TOOLS—Herrick Aiken, of Franklin, N. H.: I claim the form, shape, construction, combination and arrangement of the set of awls and tools (twenty in number) as described in the specification and represented in the drawings, for the purpose of connecting them with a handle, having a receptacle in the large end to contain the said awls and tools, and a socket and gripe secured in the other, and to confine and hold the several awls and tools for use as occasion may require.

I also claim making the shanks of the awls and tools square with parallel sides serrated and equal in size for the purpose of inserting them into a gripe connected with a handle, the shanks being serrated so that the gripe will hold them more firmly for use than if the shanks were made plane without the serrating; and these improvements in awls and tools I claim when used in any kind of socket and gripe for holding and changing them.

SEEDING MACHINES—C. F. Anderson, of Charlestown, N. H.: I claim, first, Actuating the seed slides, Q R, by means of the shaft, K, operated from the wheel, P, by the spur wheel, J, pinion, L, beveled or made of double oblique form on its outer side, the tube or collar, i, provided with the pin, o, and the zig-zag groove in the shaft, K, and the spring, c′, the above parts being arranged to operate as and for the purpose set forth.

Second, The latch or catch, W, connected with the slides, Q R, and used in connection with the sliding collar, M, and the boss or shell o, on shaft, K, substantially as and for the purpose set forth.

Third, The blade or scraper, f″, attached to the rod, e″, and actuated when desired by means of the spindle, z″, shaft, d″, link, c″, and spring, g″, substantially as and for the purpose specified.

Fourth, raising and lowering the frame, E, of the machine by means of the eccentrics, C C′, attached to the axle, A, in connection with the straps, D D, and clutch, f, substantially as and for the purpose specified.

[This invention relates to an improvement in that class of seeding machines in which the distributing devices are combined, for the purpose of distributing different kinds of seeds with one and the same driving mechanism; and the invention also relates to a peculiar device for making the hills at certain points, and to a novel arrangement of means for elevating the body of the machine so that the seed conveying tubes and shares may be readily elevated from the ground while the machine is being drawn from place to place, or at any time when the distribution or planting of the seed is not required, while the machine is in motion, as in turning at the end of rows and the like.]

SEWING MACHINES—J. E. Atwood, J. C. Atwood and O. Atwood, of Mansfield Center, Conn.: We do not claim the use of a die to guide the needle and hold it steady against the action of the looper.

But we claim the arrangement of the needle die, the looper, and the stationary finger, in such relation to each other as described, for the purpose of extending the loops on a position for the needle to enter them without failure.

[We have given a notice of this machine in another column.]

CHAFF SCREENS FOR WINNOWING MACHINES—Alfred Belchamber, of Ripley, O.: I do not claim forming chaff screens for winnowers by punching sheet metal plate, so that burs may be formed and turned up, for this has been previously done.

But I claim constructing the screen of sheet metal plates or strips, a, bent or turned over at one edge, and slitted or cut at the opposite edge, so that portions, c d, may be bent up as shown, the plates being secured in the frame or between the sides, A A, so as to overlap each other, and the whole arranged substantially as and for the purpose set forth.

[This invention consists in the peculiar construction of the screen, whereby the screen is rendered strong and durable, more effective in its operation, readily cleansed or freed from foreign substances, if they are caught in it, and quite economical to construct.]

SAWING MACHINE—J. L. Beadle, of Marengo, N. Y.: I claim the combination embraced in the manner of raising the table with the manner of adjusting the cross head and dogs, as described, and for the purposes set forth.

DOUBLE ACTING FORCE PUMPS—Eugene Bellamy, of St. Louis, Mo.: I claim, first, The division piece, V, as constructed, with top and bottom grooves, u, fitting or corresponding flanches, u′, on the lower chamber, and on the adjustable piece, w, for the purpose set forth.

Second, I claim the cylinder, B, as constructed with flanches, b, fitting into grooves, d, in cylinder, A, as a removable cylinder, easily removed, so that another can be replaced in case of breakage.

DREDGING MACHINES—E. B. Bishop, of Shreveport, La.: I am aware that screw shafts have been proposed for use as snow clearers on railroads, and therefore I do not claim them broadly.

But I claim the combination with the bow of the boat, A, of two spirally flanched shafts, F F, in the manner substantially as described for the purpose of dredging or deepening the channels of rivers, &c.

[A description will be found on another page.]

PLOWS—Thomas E. C. Brinly, of Simpsonville, Ky.: I claim the grass hook, B, and its plate, C, when constructed, arranged and operated in relation to the beam and moldboard of the plow, substantially in the manner and for the purpose set forth.

RAILROAD CAR SEAT—David Buzzell, of Charlestown, Mass.: I claim an improved railway chair or combination of stationary seat, a reversible back, two swinging foot rests, and mechanism so connecting the said foot rests and the reversible back as to enable the foot rests to be operated by the back in manner and under circumstances substantially as described.

I also claim making the reversible back, A, in three parts, K l m, arranged and applied together substantially in the manner and so as to operate as specified.

I also claim the application of the springs to the head rests in the manner set forth, such head rests being provided with latches, or their equivalents, as specified.

WASHING MACHINE—Henry Capsell, of Fredericktown, O.: I claim the arrangement of the spring pawls, w, and grooves, v, on the shaft, F, and these arranged with the hooks, u, for elevating the pounders and the spring, M, for purposes mentioned in the specification.

TRIMMING THE EDGES OF CIRCULAR BOOT TOPS—P. C. Clapp, of Sloughton, Mass.: I claim the arrangement of the boot-board, J, the movable frame, X Y, the slide, W, and the boot form, Z, for turning the edges of the circular and other shaped boot tops in the manner set forth.

MOWING MACHINES—Wm. Crook, of New Hope, Pa.: I claim securing the driver's seat to the hinged cutter frame of a mowing machine in such a position as regards the center of vibration of said frame, that the weight of the driver may act as a counterbalance, or nearly so, to the cutting apparatus, for the purpose specified.

TRUSS PADS—Wm. F. Daily, of Baltimore, Md.: I claim, first, Constructing a hollow truss pad or supporter A, for hernia, with a series of small perforations, c, in its front plate, a, in combination with enlarged openings in its back plate, so as to allow some healing substance to be brought in contact with the body, and also ventilation or a perfect and healthful circulation of air through it and over or about that part of the body covered by and with which the pad or supporter, A, comes directly and constantly in contact, substantially as set forth.

Second, Attaching the pad, **A**, to the main spring of the truss or body strap, C, by means of the combined agency of a recess or groove, C, in the back of the pad, an oblong slot, D, in the main spring, and a single set screw, E, whereby every facility of adjusting the pad, A, speedily, by simply operating one screw, E, is afforded, and at the same time the liability of the pad, A, twisting round and rubbing is avoided, substantially as set forth.

[See a description in another portion of this paper.]

CORN SHELLERS—A. B. Davis, of Philadelphia, Pa.: I claim the endless band or endless chain of toothed plates, G, in combination with the angular gating, N, when the same are arranged for joint operation, substantially as and for the purpose set forth.

BASES FOR ARTIFICIAL TEETH—George Diffenbach, of New York City: I claim making the base for artificial teeth of a composition of matter in which amber forms the principal ingredient, in the manner substantially as described.

RAILROAD CAR BRAKE—Gideon Dorsch, of Schenectady, N. Y.: In itself considered, I do not claim the endless chain, b.

But I claim combining the ends of the levers, E E, with an endless chain, b, as and for the purposes set forth, when said levers are hung and operated as described.

COP TUBES—James Eaton, of Townsend Harbor, Mass.: I claim as a new article of manufacture a metallic cop tube having corrugations or grooves upon its surface formed by corresponding knife edges or their equivalents upon the face of the die in which the table is made, as set forth.

HARVESTERS—D. W. Entrikin and L. H. Davis, of West Chester, Pa.: We claim, first, The combination of shaft, K, curved attachment, D, lever, l, pulley, G, tongue, C, and ratchet, H, substantially as and for the purpose set forth.

Second, The combination of the slotted side piece upon the main axle with the crank working in said slot, substantially as and for the purpose set forth.

Third, The combination of the rollers, p p, above and below the tongue, with the vertical plates, j z, as and for the purposes specified.

CUTTING DEVICE FOR HARVESTERS—D. W. Entrikin and L. H. Davis, of West Chester, Pa.: We claim, in combination with the roughness upon the surface of the cutter bar, and cutters as described, the arching of the finger, and extending it back upon the bar, the hollowing out of the finger under the cutting bar, the whole arranged and operating as and for the purpose set forth.

HAY KNIVES—John Fasig, of Jackson, O.: I claim the angular knife, C, constructed substantially in the manner and for the purpose set forth, it being attached to the shank, A, as described.

SPRING BED BOTTOMS—Elbridge Foster, of Hartford, Conn.: I do not claim the peculiar spring.

But I claim the arrangement of the side and end springs, that is so that while one set of springs shall be attached at the middle parts of each to the frame, A, and be made to bear at their ends against the bars, F F, the other set shall be attached to their middle parts to the bars, F F, and be made to bear at their ends on the frame, A.

WATER AND FIREPROOF SAFE—John T. Garlick, of New York City: I do not claim making a safe either fireproof or water tight, nor making it sufficiently buoyant to float in the water in case of necessity.

But I claim, first, Combining a series of air cells or spaces with a filling of non-conducting material in a safe having a door or doors closing water-tight to render the same sufficiently buoyant to float on the water, and also to resist the action of heat and prevent the heat communicating to the articles stored in the safe, in the manner set forth.

Second, The combination of the safe constructed and arranged as described, with the loose bed or bottom piece, H, as and for the purposes set forth.

SEED DRILLS—J. Harris, of Shippensburg, Pa.: I claim having the spring bar, which is attached fast to the upper part of the main relief connecting bar, B, of the drill tooth, A, by one end, loosely connected at its other end to the upper end of the drill tooth by means of a curved hook on the tooth and a slot in itself, substantially as and for the purposes set forth.

[This invention consists of a spring attachment for drill teeth, and by it provision is made for the drill teeth yielding when they come in contact with stumps and stones, and thus save themselves from being broken, and then, after passing the obstruction, of springing forward to its original position. The arrangement is very simple, and not at all liable to get deranged.]

LOCK—H. L. Hervey, of Windsor, Conn.: I claim, first, the pin wheel, D, or its equivalent, constructed and operating as described and for the purpose set forth,

Second, I claim the revolving slotted dial, G, either plane, pointed, or corrugated on its face, in combination with the dial holder, E, operating, as described and for the purposes set forth.

Fourth, I claim the dial, M, illuminated or not, and index hand, L, when arranged and operating in connection with inside dial, G.

Fifth, I claim the manner of changing the lock into a common spring lock by means of pin, u, in the manner set forth.

CHRONOMETRIC LOCK—Amos Holbrook, of Milford, Mass.: I claim, first, The use, in the construction of automatic and chronometric locks, of jointed release levers, so arranged that their action when released shall be from the time-work, and so that the releasing of either lever from its rest on the time-work, shall release one end of the crescent, I, or its equivalent.

Second, The retaining of release levers while the lock remains locked upon fixed or adjustable rests, which shall receive all pressure necessary to insure the action of the levers when released by the time-work.

Third, The use of a crescent, I, or its equivalent, so arranged that the releasing of either end of it shall also release the unlocking spring or springs, and unlock the lock as set forth.

Fourth, The use of a spiral grooved cylinder (operated by time-work) with the base or bottom of the spiral grooves full and entire without notch or cavity, as set forth.

Fifth, The use of a hollow cylinder locking bolt revolving loosely in its bed when locked as set forth.

Sixth, The adjusting springs, J J K, or their equivalents for the purposes set forth.

Seventh, The arrangement of a T guide, or its equivalent, with its guides and unlocking springs between the unlocking bolts, as set forth.

Eighth, The spiral spring bolt, operated from the outside of the lock plate, for the purpose of retaining the locking spring compressed till closing the door, as set forth.

WHEELWRIGHTS' MACHINE—Samuel Holl, of Reading, Pa.: I claim, first, The advantage of cutting the whole length of the tenons from the circumference of the spokes toward the cutter, thereby economizing time and labor to what all other tenoning machines require, as they commence cutting at the end of the spokes against the grain of the wood, consequently their cutters or bits cannot compete with mine for economy and durability.

Second, The advantage of my machine answering the double purpose of tenoning and hub boring on the same frame or table work without removing the wheel. I am aware that gearing of different kinds has been heretofore used, but I am not aware that this device or motion of gearing has been heretofore used for the purpose specified, I therefore do not broadly claim the gearing separately.

But I claim the sliding feed rest, c, or anything essentially the same, in combination with the devices of the open ended shaft, R, level gearing, V, and 6, check screws, and nuts, e and j f, also feed screw, a, shaft, 7, spur gear, 8 and 9, and guide, b, when arranged as described, and used for the purpose set forth.

I also claim the combination and arrangement of the device for cutting tenons and boring hubs without removing the wheel from the machine, substantially as and for the purpose set forth.

WATER FILTERERS—A. Jaminet, of Florisant, Mo.: I claim combining one or more doubled chambered preparatory separating vessels, B B1 B2 B3, with one or more filtering vessels. E E 1 E 2, and furnishing both sets of vessels with puppet or other valves, D D, and operating said valves by means of tilting troughs through the agency of the weight of the filtered water, all substantially as and for the purposes set forth.

MACHINE FOR EXCAVATING AND WASHING GOLD—Solomon Johnson, of New York City: I claim the chain and buckets in their peculiar form of construction, and method of operation in combination with the pump, d, all substantially as set forth.

BEE HIVES—K. P. Kidder, of Burlington, Vt.: I claim, first, The particular construction of the hive so that the smaller portion may fit within the larger portion and leave a dead air space between them, or raised up and supported on the division or partition boards to form two hives, the whole being constructed and operating as herein set forth.

And I also claim in combination with the hive constructed as described, the device w, for regulating or entirely cutting off the ingress or egress openings, said device being susceptible of four distinct adjustments, as set forth and explained.

BONNET FRAMES—W. E. Kidd, of New York, N. Y.: I claim making ladies bonnet frames of two thicknesses of cape lace, substantially as and in the manner specified.

THROTTLE VALVE—T. S. La France, of Elmira, N. Y.: I am aware that hollow conical valves have before been used, and such alone I do not claim.

Nor do I claim the employment of recesses formed in the periphery for the admission of steam, for the purpose of balancing the valve when at rest, as such arrangement does not produce the effect claimed for my invention.

But I claim the series of chambers d d, in the valve seat, in combination with corresponding chambers or passages in the valve shell B, and the bracing and binding partitions b b, the whole arranged and operating, substantially as set forth.

MODE OF CONSTRUCTING TRUNK HANDLES—Samuel Lagowitz, of Newark, N. J.: I do not claim to be the inventor of pressing leather into dies or moulds for the purpose of ornamenting the same, this has long been in common use for various purposes.

I claim the thin leather shell, prepared, packed and stitched in the manner and for the specified purpose, substantially as described and shown.

STRAW CUTTERS—J. R. Landis, of Lancaster, Pa.: I claim a yielding bed or bottom in the feeding trough or box, connected to and depressed by the lower feeding roller as it is forced down by the material fed into the machine, substantially as described.

And, in combination with the above, I claim the rotary cutting apparatus arranged to receive the cut fodder and cut it still finer, as described.

TRACK CLEARERS FOR MOWING MACHINES—Abraham Marcellus, of Amsterdam, N. Y.: I do not claim separately the wing E, and the plate or board F, for they had been previously used.

But I claim operating the plate or board F from the driving wheel C, by means herein shown, or its equivalent for the purpose set forth.

[The invention in this track clearer consists in a novel way of operating or vibrating a plate or board, which is pivoted to the shoe and fitted within the ring, at the outer end of the finger bar of the machine, the vibrating board and ring forming the track clearer. The invention relates to a modification of an improved track clearer, for which letters patent were granted the the inventor Dec. 29, 1857. In the latter invention the plate or board was so arranged as to be operated by a cam placed on the wheel, which supports the outer end of the finger bar, and hence this track clearer was only applicable to large machines, or such in which it was necessary to have the outer ends of the finger bars supported by a wheel. The invention now patented is designed to render the vibrating plate or board applicable to small or light machines, or any class of mowing machines in which it is not necessary to have the finger bars supported at their outer ends by wheels.]

IMPROVED DOOR FASTENER—G. W. McGill, of Buffalo, N. Y.: I claim, first, The formation of the blade B, with its peculiar connection with blade I.

Second, The use of the blade B, constructed as described, and operating in connection with screw L and blade I, and screw C, for the purpose specified.

GRAIN AND GRASS HARVESTERS—Henry Marcellus, of Amsterdam, N. Y.: I claim the V-shaped ledges, b, secured in any proper way between the fingers B, at their back parts, in combination with the oblique sides e, at the back parts, of the cutter teeth d, the parts being arranged to operate substantially as and for the purpose set forth.

[This invention relates to an improvement in the reciprocating cutter which is most generally used for harvesters, and has for its object the preventing of the same from being choked or clogged. The invention consists in having horizontal V-shaped ledges at the back parts of the fingers, and having the back parts of the teeth, which are underneath the cutter bar, and which work over the V-shaped ledges, formed obliquely at their sides, so that, as the sickle or cutter is operated, the V-shaped ledges in connection with the oblique sides of the teeth will force outward from the back part of the sickle all cut grass or grain which might have been between the cutter bar and fingers, and which would otherwise choke or clog the cutter, so as to render the same inoperative.

MACHINES FOR HOISTING AND DUMPING COAL—George Martz, of Potterville, Pa.: I claim, first, The employment in combination with the car F, and dumping chute I, of the peculiar arrangement of mechanism consisting of the sliding gate B, pivoted platform E confining catches T g g, trip bar H, tilting or dumping stop bar J, all substantially as, and for the purposes set forth.

Second, The employment of the tilting or dumping stop bar J, whether yielding or stationary, above the front of the platform E, substantially as, and for the purposes set forth.

Third, Having the sections d d, of the railroad attached to the platform, so that they may rise and come in contact with the wheels of the car and cause the car to assume a proper lifting position, and also serve for lifting the car, and likewise for holding it from forward or backward play while tilted or dumped, substantially as, and for the purposes set forth.

BAR FOR SECURING BANK VAULTS—William Maurer, of New York, N. Y.: I do not claim the attachments of hooks to a sliding piece or bar, broadly, as this has been proposed before.

But I claim attaching on the inner side of a movable cross bar, by which vaults or safe doors are secured and strengthened, a sliding piece provided with hooks and so arranged that said sliding piece may be operated after the bar is in its place, for the purpose of firmly connecting by means of said hooks the bar with the door and the door frame, or with both doors where double doors are used, in the manner as described.

Secondly, I do not claim the mode of hinging a bar to the door or door frame generally.

But I claim the arrangement and use of a revolving hinge plate, to which the bar for securing and strengthening doors is attached, constructed in the manner and for the purposes specified.

ILLUMINATING IRON ROLLER SHUTTERS—James McIntyre, of New York, N. Y.: I am aware that iron and glass have been combined in various ways for vault lights, windows, and other parts of buildings, and therefore I disclaim such combination for all other purposes than the slats of of rolling iron shutters,

But I am not aware that glass has ever been used in a rolling iron shutter, or that such a shutter has ever been used in a rolling iron shutter, or that such a shutter has ever been made to possess the combination of characteristics herein mentioned.

I therefore claim the construction of rolling shutter with its slats of iron and glass combined, substantially as herein described, to obtain the characteristics specified.

[This is described on another page.]

RAILROAD CAR COUPLING—Albert Hibbard, of Galesburgh, Ill.: I claim the combination of the round or oval ring or clevis attached to the hook of the bumper, the same to act as a self-coupling, the latch and the catches or any other equivalent substantially the same, so as to enable any one to use the bumper and ring as a self-coupling.

CORDS FOR SKIRTS—David Perry, of Paterson, N. Y. Ante-dated October 13, 1857: I claim the hoop-like manufacture of cordage, when made in the manner and for the particular purposes described, that is to say, I claim the untwisted fibrous or filamentous core, when compressed and lapped or wound, while in that state, in the manner and for the purposes described.

REAPING AND MOWING MACHINES—Charles Beach, of Penn Yan, N. Y.: I claim the combination of the cutters C and D, with the separator of a harvesting machine, when arranged and operated as, and for the purpose herein set forth,

WATCH CASES—Elihu Bliss, (assignor to Baldwin & Co.,) of Newark, N. J.: I claim, first, arranging the pendant so as to form one of the centres on which the body of the watch turns, and by which it is permanently attached to the outer case, whereby the pendant itself forms a handle to reverse the body of the watch on the outer case, for the purpose described.

Second, Arranging the case holding the works of the watch within a secondary ring b, pivoted to the outer case, so that the body of the watch can be turned in a plane parallel to its face, in order to change the position of the figures on the dial plate when the watch is reversed in the outer case.

Third, The arrangement of the push piece f, and pin h, as described, so as to act on the spring holding catch of the close brizzle of the outer case when on either side of the pendant.

FURNACES.—James McCracken, of Bloomfield, N. J.: I do not claim the employment of hollow grate bars for the passage of air through them, as such have before been known and used.

Nor do I claim supplying air to the gaseous products of combustion, for the combustion of the inflammable gases evolved from the fuel.

Nor do I claim the heating of the air to be supplied to the inflammable gases.

Nor, finally, do I claim the use of a shield plate to protect the bottom of the boiler, and prevent it from being overheated, as all these have long been known.

But I claim the employment of hollow grate bars, in combination with a closed ash pit, in the manner substantially as herein described, so that the air which passes through the said grate bars shall be discharged into the ash-pit, and thence pass up between the said grate bars to supply the blast or draft to the fire on the grate bars as set forth.

I also claim the use of tubular bearers for supplying heated air to the inflammable gases at or near the fire bridge, substantially as described, in connection with a shield plate, substantially as described, and interposed between the fire and boiler or other body to be heated, constructed and arranged as specified, to maintain the inflammable gases at a high temperature until after they are supplied with heated air for their ignition, as described.

STENCIL PALLET—Joseph H. Merriam, of Boston, Mass.: I claim as a new manufacture a stencil maker's pallet or pot, constructed substantially as described.

CONDUIT JOINT FOR GAS PIPES—Charles Monson, of New Haven, Conn.: I claim the described new mode of connecting two leading tubes, A B, viz., by a flexible tube, D, and a joint which will not only allow one tube to be moved into one or more angular positions with respect to the other tube, but so connect the two leading tubes as to relieve the flexible tube from injurious longitudinal or tensible strain as specified.

CONNECTING RIGIDLY THE ENDS OF METAL BEAMS—Samuel Nowlan, of New York City: I am aware that gas and water pipes are jointed together by pouring in molten metal to confine the ends of the pipes together, and that molten metal has been used to confine bolts and other fastenings in stone and other material, and I do not therefore claim broadly the use of molten metal poured into a joint to confine and retain it in place.

But I claim forming a rigid joint of two metal beams by pouring molten metal between the tongue of one beam and the mortise of the other, constructed respectively and arranged in the manner described, i. e., when the sides of the tongue, which have a latch projection, fit on to the sides of a similar shaped mortise and socket, and when the opposite sides of both the tongue and the mortise are corrugated, and leave a space between themselves, into which the molten metal is to be poured, substantially in the manner and for the purposes specified.

GIVING ADHESION TO DRIVING WHEELS OF STEAM VEHICLES, PLOWS, &c.—John T. Price, of Rockville, Ind.: I claim the arrangement of spurs on driving wheels for a steam plow or land carriage, so that the said spurs do not interfere with the rolling of said wheel, unless it should slip on the ground, and then when it slips said spurs (aided by the diagonal corrugations tending to face the dirt against them) to take effect and prevent it, as substantially set forth.

PROCESS OF EXTRACTING FAT OILS FROM SEEDS—John Preston, of Dorchester, Mass.: I claim the employment of either molasses or a sugar sirup under circumstances and in manner substantially as set forth.

FOG BELLS—A. C. Rand and R. R. Johnson, of Buffalo, N. Y.: We claim the arrangement of mechanism No. 1 and mechanism No. 2, (or their equivalents) relating to each other for the purposes substantially as set forth.

SNOW PLOWS—Samuel Richards, of Philadelphia, Pa.: I do not desire to claim the adjustment of the vertical planes up or down the inclined plane alone, or the adjustment of said vertical planes to the right or left side separately considered.

But claim as an improvement on my former patent of May 13th, 1856, the snow plow having vertical planes

© 1858 SCIENTIFIC AMRICAN, INC.

made adjustable at the same time both up and down the inclined plane, and from side to side, whereby it is rendered equally effective in passing from light snow to deep snow, and in throwing the snow to either side of the track at pleasure, the whole being arranged and operating substantially as described.

TIGHTENING THE SPOKES AND FELLIES OF CARRIAGE WHEELS—B. A. Rogers, of Shubuta, Miss.: I do not claim having the spokes communicate with the eye of the hub and expanded by a cone box.

But I claim the combination, in a wheel, of the annular chamber, E, spoke sockets, G, communicating with said chamber, expanding packing ring, H, taper axle box, I, and extended spoke, B B, substantially as and for the purposes set forth.

STRAW CUTTERS—E. P. Russell, of Manlius, N. Y.: I claim the arrangement of the knife, B, and feed rollers K L, when attached for operation, and arranged relatively with the feed box, A, substantially as and for the purposes set forth.

SEED PLANTERS—Thomas Russell, of Waldoborough, Me.: I claim arranging the arm, p', of the rocker shaft, c, so as to extend and operate in the space, I, between the wheels as described, in order that such arm may serve to clear the said space between the wheels from earth which may adhere or be taken up therein.

I also claim in connection with a hopper made removable from the frame as specified, applying the movable brush, ●, to the dropper or valve, K, by means of an arm, u, extending down from the brush shaft and into the dropper, K, in the manner as described, the same being for the purpose as specified.

WRENCH—E. Scripture, of New Haven, Conn.: I am aware that a wrench has been made having a screw thread cut upon the face of the shank, and a screw nut fitted into one side of the movable jaw, the arrangement being such that when the periphery of the screw nut is forced and held into contact with the screw thread, by means of a cam button, the movable jaw may be operated by turning the nut; I do not claim any device of this kind.

I am aware that a pawl, H, and a serrated bar, A, in connection with an arm, E, provided with a spring, b, have been previously used, and I therefore do not claim said parts.

But I claim the employment within the pawl, H, of a screw rod, G, substantially as and for the purposes set forth.

[A notice of this invention will be found in another column.]

CHAIN SHACKLE—Joseph Snelling, of East Boston, Mass.: I do not claim a shackle or chain link made in four separate parts, arranged at right angles to each other and held together by rivets, screws, and nuts.

But I claim the improved connecting shackle or link as made in two parts, A B, and with one of them formed in one piece as a double hook and with a space, c, between its extremities, and with tenons, d d, as described, and its other part constructed so as to extend into and fill the said space and lap over the hooks and receive these tenons, substantially as specified.

COOKING STOVES—James Spear, of Philadelphia, Pa.: I claim the hollow center piece, p, when connected with the hot air tube, t, and constructed in the manner and for the purposes set forth.

HORSE SHOE MACHINE—Geo. Stiles, Jr., and Strickland Kneass, of Philadelphia, Pa.: We are aware that an arrangement of a revolving "former" has been heretofore patented in combination with two stationary bending levers; we do not therefore claim any such arrangement.

But we claim, first, the employment of the stationary former, e e' e'', in connection with the reciprocating levers, K K' K'' K''', and with the fixed cam, S, arranged and operating as set forth.

Second, The employment of the moving swager, d d' d'', and fixed swager, f f' f'', for forming and swaging the shoe while on the former, e e' e'', and inclosed at the side in a hollow moving die box. H H', arranged and operating as set forth.

Third, The employment of the hollow box plunger, H H', in connection with the former, C C', for creasing and punching the shoe at the same time that the outer edge is finished by the hollow die box, the whole arranged and operating substantially as above described.

RAKING ATTACHMENT TO HARVESTERS—Oren Stoddard, of Busti, N. Y.: I claim, first, the balance frame, F, or its equivalent connected with fingers or arms, q, or other raking device, in such a manner that the cut grain by its own gravity, in connection with the weight or counterpoise, K, of the frame, F, will be made to actuate the raking device so that the gavels will be discharged from the frame of equal weight, however variable the crop being cut may be.

Second, The peculiar arrangement of the balance frame, F, shaft, D, with clutch, d, attached, pulleys, e e, on shaft, D, cords, b, fingers or arms, g g, and bar, H, substantially as and for the purpose set forth.

Third, The registering device formed of the dial, m, and index, l, operated automatically from the raking device, substantially as and for the purpose set forth.

[This invention consists, firstly, in a novel raking device, so constructed and arranged that the cut grain in consequence of its gravity is made to actuate the rake and be the means of causing it to be raked off the platform at proper intervals to form the gavels or sheaves of uniform size. Secondly, there is a peculiar arrangement of the cutting device, whereby the same is made to operate with a comparatively small amount of friction. Thirdly, there is a registering device connected with the raking device, and so arranged as to number the gavels or sheaves as they are raked from the platform. This invention is designed chiefly for small hand harvesters, or which are pushed along by an operator, but it may be applied to large machines with advantage.]

GAS BURNERS—Wm. Fallman, of Cincinnati, Ohio: I am aware that disks have been employed within gas burners to act on the principle of valves, I therefore do not claim such.

But I claim the construction and arrangement substantially as described, of the disk, c, fixed concentrically within the burner so as to leave around it a contracted annular passage, c, for the purpose explained.

SODA FOUNTAINS—C. D. Van Allen and Saml. Avery, of Baldwinsville, N. Y.: We claim the apparatus described, that is to say the combination of the reservoirs, J J, (the one an acid, the other an alkali, in separated solutions) pipes, K K, valve, M, pump chamber, P, elastic cover, C, aperture, ●, valve, N, valve cap, D, pipe, E, and generator, F, when these several parts are constructed and relatively arranged with respect to each other as set forth for the purpose specified.

REVOLVING FIRE ARMS—Rollin White, of Hartford, Conn.: I do not here intend to claim extending the chambers right through the rear of the rotating cylinder, as that forms part of the subject matter of Letters Patent of the United States obtained by me, dated 3d April, 1855.

But I claim, first, the enlargement of the chambers in the rotating cylinder, or in a position thereof in a rearward direction when such cylinder or portion thereof is detached from the breech and thereby rendered capable, by such enlargement, of being driven forward substantially as described, into contact with the stationary barrel, for the purpose of preventing windage.

Second, Making the detached breech of the rotating chambered cylinder rotate with the cylinder, substantially as and for the purpose set forth.

Third, Constructing the breech of the revolving cylinder with a recess, i, in its face at the back of each chamber, and a notch, j, in its periphery meeting the said recess substantially as described, so that the hammer, H, swinging in the manner most common to fire arms may strike into the chambers and cut or tear, and thereby explode the cartridge.

Fourth, The fitting of the hammer to close that portion of the breech which is left open by the notches, j j.

[A notice of this will be found on this page.]

LOCOMOTIVE ENGINES—Ross Winans, of Baltimore, Md.: I claim the arrangement of the house or position for the engine man between the fire box and the forward end of the boiler, to aid in properly distributing the weight upon the wheels in a locomotive engine, with a fire-box of the large size necessary for the economical burning of coal as fuel, and incidentally to secure other advantages, substantially as set forth.

ROLLING MILLS—John A. Bailey, of Boston, Mass., (assignor to James Horner and James Ludlum, of New York City: I do not claim, broadly, the alternate raising or lowering of one or more of the rollers in rolling mills, for the purpose of producing wedge-shape work, for I am aware that it is common to place the ends of rollers in sliding frames, and to depress or elevate the latter by separate cams.

But I claim the application of eccentrics, C D, to the journals, a, of rolling mill rollers in the manner and for the purposes substantially as shown and described.

[A notice will be found in another column.]

PRESERVE JARS—Joseph Borden, of Bridgeton, N. Y., (assignor to David Potter and Francis L. Bodine): I claim a preserve jar, in which the cup or groove for holding the cement is formed on the exterior from the wall of the jar by the method described.

OVENS—J. S. Brown, of Washington, D. C., (assignor to himself and Joseph Kent, of Baltimore, Md.): I do not claim heating the draught air before it is introduced into the furnace or heater.

But I claim introducing the draught air in a thin sheet around the top of the oven and sides substantially as described, whereby the heat, which otherwise would radiate from the outer surface of the oven, is employed for improving the combustion in the furnace or heater.

I also claim the strips or plates, b d, arranged in the inclosed air spaces substantially as described, for the purpose of confining the heated air closely to or near the inner case of the oven as specified.

ROTARY STEAM ENGINES—Levi Matthews, (assignor to himself and J. K. Andrews,) of Antrim, Ohio: While not claiming as new or broadly a hinged connection of the piston with the revolving or driving ring, by jointed attachment or attachments—

I do claim, as both new and useful, hinging the circular piston, B, at its center, to the outside driving ring, D, by means of a rigid arm or piece, r, projecting from said ring into the annular steam channel of the cylinder, as and for the purpose set forth.

MACHINE FOR ROLLING AND CUTTING DOUGH—Isaac S. Schuyler, (assignor to J. McCollum,) of New York City: I claim, first, the removable guides, A A, or their equivalent, when used in combination with the slides of a reciprocating cutter, and operated for the purpose of releasing and securing the cutter, substantially as herein before described.

Second, I claim the perforated discharging plate, either with or without yielding resistance, in combination with the reciprocating cutter when made adjustable substantially as described.

STEAM GENERATORS—Geo. Scott, (assignor to Scott, Todd & Co.,) of Philadelphia, Pa.: I do not claim broadly the employment of a rotating coil, as that has long since been known and used for various purposes.

But I claim the employment of a rotating tubular coil, one end of which is connected with any suitable apparatus for forcing in water, &c., and the other with a suitable vessel to receive the steam generated in the said coil, when this is combined with a furnace so arranged that, in the rotation, every part of the circumference of the coil will in succession pass over the fire, substantially as and for the purpose specified.

SIGNS, DOORPLATES, &C.—John Y. Wellman, (assignor to Chas. A. Thompson,) of Lowell, Mass.: I claim the new manufacture of door plate or sign described, to wit, a transparent plate having a backing containing the name or device affixed to said backing, and the backing affixed to the plate as described.

MACHINE FOR MANUFACTURING SPLINTS FOR BROOMS—John W. Wheeler, (assignor to himself and C. D. Williams,) of Cleveland, Ohio: I claim the groove cylinders, A A, the periphery of whose tongues or ribs, c c c c, pass each other as seen at e e e e, the edges being in contact and acting like revolving shears when arranged in combination with the delivering combs, E E, all operating in the manner and for the purpose set forth.

WATCH CASES—J. F. Watson, of St. John's Square, Clerkenwell, Middlesex Co., England, (assignor to Jas. Adams, of same place, assignor to Bigelow Bros. & Kennard, and Palmers & Batchelders, of Boston, Mass., assignors to Baldwin & Co., of Newark, N. J.) Patented in England, June 16th, 1857: I claim, first, attaching the pendant to the outer instead of the inner case as heretofore done, for the purposes herein set forth.

Second, The arrangement of the pivots on which the watch turns, or the springs for holding the body of the watch to the case, in relation to the figures on the dial plate, and to the pendant on the outer case, as described.

BURGLARS' ALARM—Henry Hersh, Benjamin Banman, and Henry C. Locher, of Lancaster, Pa.: We claim the shape and construction of the levers, C, with their beams, I, and weights, K, together with the sliding pins, E, as operating through levers, C, against the spring, G, all in combination as described for the purpose set forth.

PREPARING MANURE BEDS—Charles F. Spiker, of New York City. Patented in England, Aug. 19th, 1857: I disclaim distinctly the discovery of the fact that ammonia is absorbed to a small extent by oxyds of iron, or aluminous earth in its natural state, or that it is produced by the decomposition of animal substances in contact with air and water.

But I claim the use of the peculiar process by which I produce, condense, and fix ammonia, and change it into salts of ammonia, in ammonia-beds made of aluminous earth, silicates of alumina, or the oxyds of iron, sheltered from the rain and excessive temperature, and charged with diluted acids or weak solutions of such salts for the acid of which ammonia has a greater affinity than the base with which it was combined, in the manner and for the purpose set forth.

RE-ISSUES.

ROLLERS FOR WINDOW SHADES—Jacob B. Bailey, of New York City. Patented February 16, 1858: I do not claim spring, F, for the purpose of holding the roller.

Nor do I claim the endless band.

Nor do I claim the use of the india rubber as new, for the purpose of creating friction on a pulley, as that has been before known and used.

But I claim the combination of india rubber or equivalent substance, with a window shade roller or its pulley, substantially as and for the purpose described.

STEAM BOILERS—Wm. M. E. and J. B. Ellis, of Washington, D. C. Patented Sept. 29, 1857: We claim, first, Connecting the water legs, extending from the front to the rear end of the boiler continuously, to the shell of the boiler, as the point of the greatest horizontal diameter of the boiler, substantially as set forth.

Secondly, Interposing perforated plates between the flanges of the water legs and the shell of the boiler, as and for the purposes described.

GRASS HARVESTERS—Jonathan Hains, of Pekin, Ill. Patented Sept. 4, 1855. I claim, in combination with a main frame, a loose cutter bar or finger beam that projects laterally from it, and so hung to the frame as that, in being dragged over the ground, it shall receive all its vertical movements solely from the undulations of the ground over which it is drawn, by means substantially as described. I also claim the combination of two hinged or jointed rods or bars k, m, for allowing the cutter or finger bar or beams, its vertical, but restraining its lateral motion, substantially as described.

DESIGNS.

SCREENS FOR STEAM PIPES, &C.—James L. Jackson, of New York, N. Y. (Two patents.)

Sewing Machines.

We are having a great many inquiries for sewing machines from various parts of the country, and as we cannot conveniently reply to them all by mail, we have thought it proper to state our opinion in regard to them in this public manner. There are a number of very excellent machines now in the market which are deservedly successful. We have, however, never used but one, namely, Wilson's patent, manufactured by the Wheeler & Wilson Manufacturing Company, No. 343 Broadway, and we can say in regard to it that it is without a rival. No other machine exceeds it in its adaptation to all the purposes of domestic use. It is simple, not easily put out of order when in proper hands, and in point of effectiveness and finish, no other machine stands ahead of it. We state this much in regard to the excellent machine upon our own responsibility, and without the slightest intention to disparage other machines well known to the public; and we hope thereby to save ourselves considerable time and postage in answering letters which frequently come to us with inquiries touching this subject.

Testing the Quality of Steel.

The good quality of steel is shown by its being homogeneous, being easily worked at the forge, by its hardening and tempering well, by its resisting or overcoming forces, and by its elasticity. To ascertain the first point, the surface should be ground and polished on the wheel, when its lustre and texture will appear. The second test requires the giving it a heat suitable to its nature and state of conversion. The size and color of the grain are best shown by taking a bar forged into a razor form, hardening and tempering it, and then breaking off the thin edge in successive bits with a hammer and anvil. If it had been fully ignited only at the end, then, after the hardening, it will display, on fracture, a dissimilarity in the aspect of its grains from that extremity to the other, as they are whiter and larger at the former than the latter. The other qualities become manifest on filing the steel, using it as a chisel for cutting iron, or bending it under a heavy weight. Kinman long ago defined steel to be any kind of iron which, when heated to redness, and then plunged into cold water, becomes harder. But several kinds of cast iron are susceptible of such hardening. Every malleable and flexible iron, however, which may be hardened in that way is steel. Moreover, steel may be distinguished from pure iron by its giving a dark gray spot when a drop of dilute nitric acid is let fall on its surface, while iron affords a green one. Exposed to the air, steel rusts less rapidly than iron.

Recent Patented Improvements.

The following inventions have been patented this week, as will be found by referring to our List of Claims:—

REVOLVERS.—Rollin White, of Hartford, Conn., has invented some improvements in that class of fire-arms known as revolvers, in which the many-chambered cylinder is arranged to rotate on an axis that is parallel or nearly so with the stationary barrel. The first improvement consists in enlarging the chambers, or a portion of them, towards the rear, when the whole or a portion of the chambered cylinder is made in a separate piece from the breech, for the purpose of allowing the cylinder, or the portion of it that is detached from the breech to be driven forward in contact with the stationary barrel, to make a tight joint therewith by the force of the explosion of the charges. A second improvement consists in making the detached breech of a rotating chambered cylinder rotate with the cylinder, thereby obviating any stoppage to the rotation of the cylinder by the protrusion of the cartridges through the rear of the chamber; and a third improvement consists in a certain construction of the rotating breech for the purpose of allowing the hammer to strike into the chambers and explode a priming in the rear end of the cartridge, without using a needle or a detached priming, such as a cap, pill, or ribbon.

SEWING MACHINE.—This invention relates partly to the needle die, that is sometimes used for the purpose of guiding the needle and holding it steady while the looper enters between it and its thread. This part of the invention consists in making the needle die in two parts, one of which is movable to such an extent under the influence of a spring, that the die adapts itself to needles of various sizes, thereby obviating the necessity of providing each machine with two or more dies, which require changing when one needle is changed for another of different size, and also obviates the necessity of getting needles to fit the dies exactly. The invention also consists in a novel arrangement of a needle die, looper, and stationary finger, in combination with an eye-pointed needle, to sew the chain stitch with a single thread without missing any stitches. J. E., J. C., & O. Atwood, of Mansfield, Conn., are the inventors.

IRON AND GLASS SHUTTER.—James McIntyre, of New York City, has invented a new shutter, which consists in the construction of a rolling shutter with slats of iron and glass combined in such a manner as to render it not only burglar-proof and fire-proof in the same degree as shutters made wholly of iron, but sufficiently translucent to light the interior of a store, house, or office in the day time, enough for many purposes, when it is not desirable to open it, and also to expose to persons outside any light that may be used by a thief who may have secreted himself in the day time to wait for the closing up of the store. It can be easily rolled up, and possesses a combination of characteristics never before attempted in the construction of any shutter.

TRUSS PAD AND SUPPORTER.—This invention is designed for curing hernia or rupture, and it consists in a perforated pad or supporter, which supports the injured part of the body, and at the same time allows and maintains a perfect and healthful ventilation or circulation of air through it and over or around that part of the body covered by the pad. The pad can also be made hollow and open at the back, so as to admit some healing substance. And it is attached to the body strap in such a manner that it cannot shift, and still only has one screw which requires to be started in order to adjust it to the desired position. We regard this as a most excellent invention, and think every one suffering with rupture or hernia will be benefited by it. Wm. F. Daily, of Baltimore, Md., is the inventor.

MACHINE FOR DEEPENING RIVERS AND HARBORS.—This machine has two screw excavators placed at the front end of a boat, the screws being placed angularily with each other, and so arranged that, as they are rotated and the boat propelled along, the bed or bottom of the river or harbor will be scraped out and thrown on either side, thereby deepening the channel. The screws are so arranged that they may be raised or lowered as desired, and they are rotated by a steam engine on the boat, which also drives the propeller thereof. E. B. Bishop, of Shreveport, La., is the inventor.

SCREW WRENCH.—E. Scripture, of New Haven, Conn., has invented a new screw wrench, the novelty of which consists in the means employed for operating and adjusting the movable head or jaw of the wrench, so that this head or jaw may be quickly moved and firmly adjusted to the nut or other article to be turned or operated upon; the implement being held and the head or jaw operated with one hand only.

ROLLING MILL.—This invention relates to the application of eccentrics to the journals of one roller of the pair or set employed in a rolling mill, in such a manner as to effect the rolling of articles of more or less taper form as pile blanks, or articles of parallel form as may be desired. It is the invention of John A. Bailey, of Boston, Mass., who has assigned it to Jas. Horner and Jas. Ludlum, both of New York City.

© 1858 SCIENTIFIC AMRICAN, INC.

New Inventions.

New Textile Fabrics.

The *Agava Americana*, or Mexican grass, has been manufactured into a very beautiful fabric, by W. Stanton, of London, Eng., who has obtained patents for treating the fibre, and preparing it for spinning and weaving. It is first boiled in alkaline solutions, and afterwards washed and dried, when it is found to be strong and elastic, but not stiff enough for weaving. It is then run through a solution of glue and dried, and thus acquires the requisite stiffness.

New Patent Office in London.

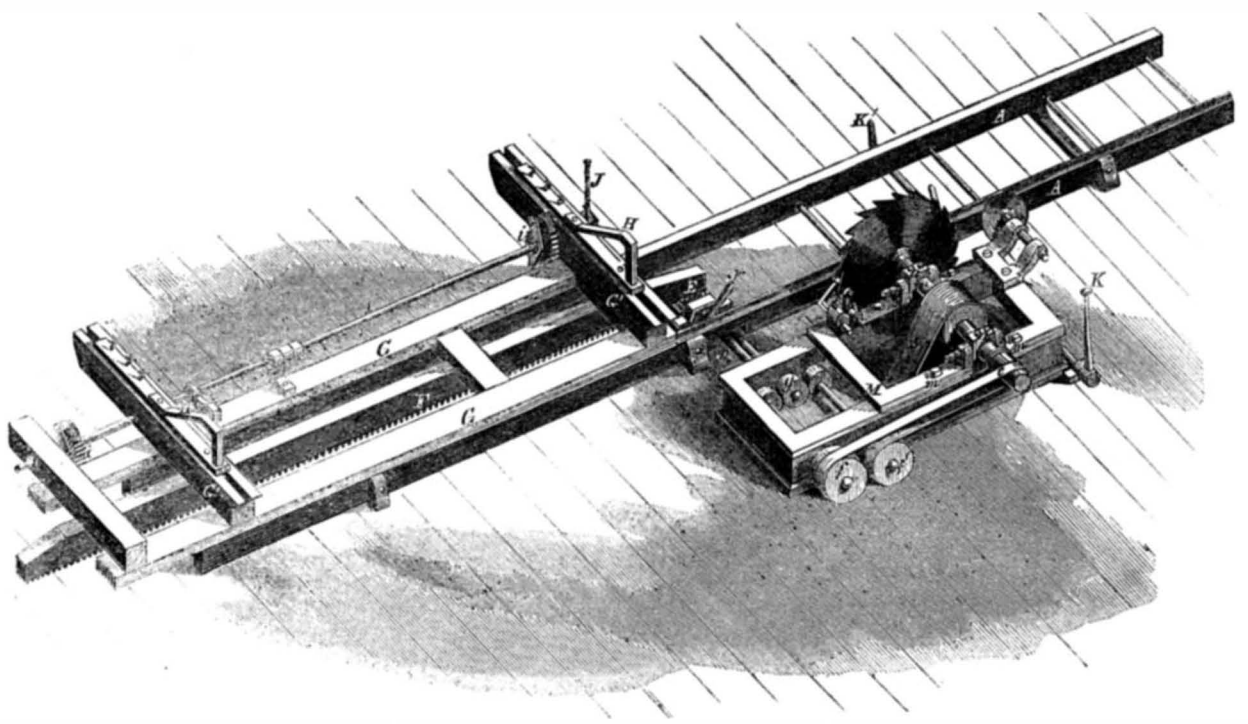
In comparison with our own noble Patent Office in Washington, the building set apart for the transaction of this business in London is a mere crib. Our cotemporary, the London *Engineer*, has been *down* on this cramped up establishment for some length of time, and has advocated the erection of a new structure, one that shall more fully illustrate the genius of the British people. In its last issue it announces the probability that something may now be done towards accomplishing this object. The new Lord Chancellor, late Sir Frederic Thesiger, who has had a good deal of practice under the Patent law, is uow conferring with the Commissioners of Patents in regard to a site for a building.

Burning Explosive Gases of Mines.

The proposition to destroy fire damp in mines is not the mere revival of some neglected and almost abandoned scheme, but altogether an innovation. The great object of all inventors in connection with the safety of mines has been to prevent the burning, and, consequently, the explosion of fire damp. From George Stephenson, in the construction of his "Geordy," to the safety lamp of his more brilliant competitor, and continuing through many inventions to the present day, the idea has ever been to prevent the combustion of the fire damp. If practicable, however, it is quite clear that the destruction of the gas would be infinitely better than its avoidance, and would give vast facilities in the working of mines. The new plan is offered by its inventor, a Frenchman, on highly favorable terms. The sum of $5,000 is to be placed in the hands of a notary in Paris, and paid to the inventor for communicating his secret when he has proved the efficacy of his system by working his apparatus in any coal mine that may be named. The apparatus is said to be permanent, and capable of destroying the fire damp as it rises ; and the inventor will, it is said, prove, by working his invention, that the safety lamp is not indispensably necessary in collieries.

We shall rejoice to learn that all this is strictly true, as it will go far to prevent one of the most destructive and distressing classes of accidents that occur among us, and that at present seem very imperfectly under the control of science or good management.

FERRY'S AUTOMATIC CIRCULAR SAW MILL.



Improved Saw Mill.

The above engraving shows a saw mill which needs no end play in its saw arbor to ensure proper ranging of the saw, and accurate cutting of timber; is automatic in its back and forward feed, being self-reversing and self-gigging back; is accurate and regular in its set of the log automatically, avoids the marring of the saw by the log or scratching of the log by the teeth of the saw, and, in fact, possesses all the requisites to a successful and profitable working of lumber, as extensive use of the same in the West has demonstrated.

In the accompanying engraving, A represents the track or way on which the log carriage, G, travels back and forth alongside the circular saw by means of rack, F, and pinion, E. This carriage has two head blocks, G′ G′, which are fed up laterally, or at right angles to the movement of the carriage, G, by means of a set lever, *i*, said lever coming in contact with an inclined set bar, which raises it and causes it to turn the ratchet shaft, J, and thereby effect the lateral feed of the head blocks with unerring accuracy and uniformity.

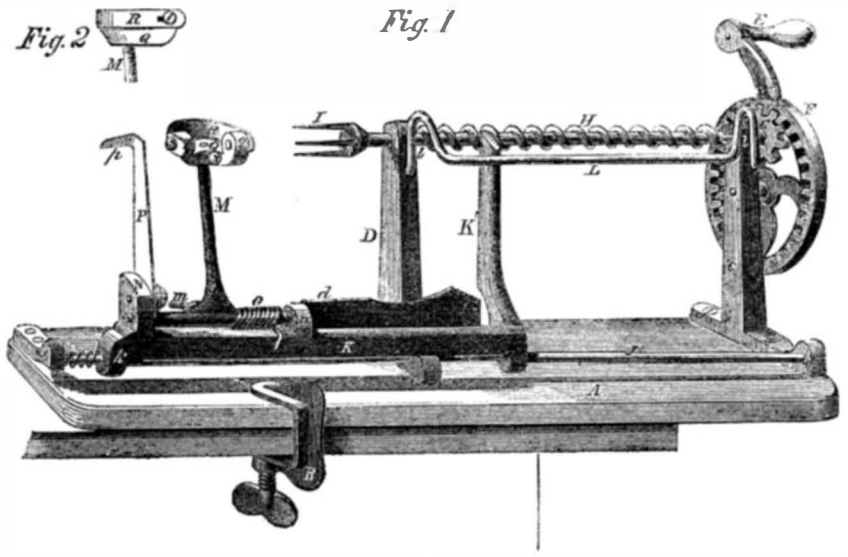
The saw arbor is set on a yoke, M. This yoke is adjustable by means of a pivot at *a*, and two set screws and oblique slots, *m m*, so as to set the saw oblique to the edge of the carriage or to cut toward the slab or log as desired. Thus setting the saw prevents the heating of it, and gives it its proper range for cutting accurately. The reversing of the carriage is effected by means of friction rollers and an adjustable roller, *g*. By shifting the roller, *g*, automatically by an eccentric on the shaft, *n*, which is turned slightly at each forward and backward motion of the carriage by reason of the carriage coming in contact with the trip, *r*. When the carriage strikes the trip, the friction roller, *g*, binds hard against either one or the other of the two rollers between which it lies, and thus the forward, reversing and gigging back motions of the log carriage are perfectly automatic.

The motion to the saw and carriage are communicated by means of the belt, *e*, running over the pulleys, *f f′*, as shown, the prime mover being the belt, B, which leads from the driving shaft of the engine.

To start this mill continuously to work, it is simply necessary to throw the lever, K, up to the position shown in the engraving, so as to bring trip, K′, in position for being struck by log carriage. To stop the mill, the lever, K, must be depressed. The several operations of feeding, setting, reversing and gigging are all automatic, and after the mill is once started, it requires no attention further than to supply it with timber.

We regard this as a most excellent saw mill, and know for a fact that it is extensively used in the West. It was patented April 6, 1858, by W. M. Ferry Jr., of Ferrysburg, Mich, who will furnish any further details.

WHITTEMORE'S APPLE PARING AND SLICING MACHINE.



Cutting and paring apples is in some portions of the country quite an occupation at which many persons are employed and much time expended, and as a natural consequence inventors have turned their attention to this field for the exercise of their ingenuity, and one of the results is the subject of our engraving. The inventor, D. H. Whittemore, of Worcester, Mass., has given much time and patience to the perfection of this simple little machine, and has obtained patents for it on successive improvements, Nov. 11, 1856, Jan. 13, and Feb. 17, 1857, and he has also patented it in England.

This machine not only pares the apple, but also cores and slices it, and leaves it in the very best state for cooking or drying. In the engraving, of which Fig. 1 is a perspective view of the whole machine, A is a stand or base on which the machine is erected, and this can be clamped to the edge of a table or any convenient stand by means of the clamp, B. C is an upright of cast iron, which serves as a journal of the axle or shaft, H, and as a rest for one end of a wire, L, the other rests in the upright, D, to the base of which is cast a piece, *d*, that serves as a guide for the cutter. E is the handle by which the machine is operated, and it turns the gear wheel, F, that gives motion to the smaller gear wheel, G, on the end of the screw shaft, H, while the other carries the prongs, I, on which the apple is placed. J is a wire which runs from the base of C to support *j*, and on this slides the piece, K, that supports the cutters. J passes through two bearings *k* in K, so that it can move along, and is allowed some play. There is a piece, K′, rises from the end of K, which passing through the bend, *l*, in the wire, L, fits into the screw, H, and so when the handle E is rotated, draws the cutters over and through the apple, and when the apple is cut drops over through the other bend, *l*, so that K can be moved to its former position by the hand, and be ready for work again. M is a rod on a shaft that can move in the journals, N and *n*, and it is kept upright by the spring, O, passing around it and attached to the projection, *m*; in working this projection, *m* passes over the guide, *d*, and in a great measure takes off the force of the spring so that the cutter shall not press on the apple too hard, and also serves to throw K′ out of L at the end of the screw. The cutter or parer is of semi-circular form as seen at R, and it is fastened to two ears, *q*, on the head Q, by screws; it projects slightly over Q, as will be better seen in Fig. 2, which is a side view of the cutter and head, and can be made to project more or less at pleasure. From its form it cannot fail to cut, even should it become clogged in one part when the apple came round again; another part of the cutter would catch it, and pare off the rind. To N is secured, by a screw, the slicer and corer, P; *p*, being the coring knife ; it cuts the apple in a spiral form, and by a slot in it, it can be made to leave any sized core, or it can be entirely removed for paring turnips, potatoes, &c.

The operation is simple. The apple is placed on I, the piece, K′ is placed against H, and the small spring at *j* keeps the cutter against the apple until K′ is fairly in gear, by giving the handle, E, five turns, the apple is pared, cored and sliced, and can be slid off, and it is in the best form for drying; or one stroke of a knife across it cuts it into slices for pies ; or it can be left alone for dumplings and the like ; or the hole from which the core has been extracted can be filled with sugar and the apple baked.

It is a simple and perfect little machine, and can be obtained at all hardware stores. It is manufactured by Whittemore Bros., Worcester, Mass., from whom all further particulars can be obtained.

CAMELS.—It is stated that the government has made a contract with the citizens of Texas for supplying $25,000 worth of camels for the use of the army. Commercial arrangements will be made with some point in Africa affording the best facilities for purchasing animals suitable to our climate, and for exportation hither.

© 1858 SCIENTIFIC AMRICAN, INC.

Scientific American.

NEW YORK, APRIL 24, 1858.

The Colt Patent Extension.

From what we can see of the maneuvering in the lobby in certain patent extension cases now before Congress, it would seem that Col. Colt is bringing the strongest possible influence to bear upon his case by means of a series of testimonials and certificates from gentlemen of the highest military repute in the United States army. Each of these gentlemen bears testimony to the value of the Colonel's firearms, and declares their superiority over all others. The Secretary of War, the Hon. J. B. Floyd, remarks in his letter that "Colt's pistol has become essential to the public service." These are very flattering, and no doubt the honest expression of the testifiers' opinions, and at any other time we should like to congratulate Col. Colt on their reception; they are not addressed to him, but are addressed by the Secretary of War to the Hon. J. A Stewart, Chairman of the Committee on Patents in the House of Representatives, and are intended to have influence in that committee in giving weight to the application for a special legislative act granting a fresh lease of life to the already expired patent of Col. Colt.

These testimonials appeared in the Washington *Union* of the 10th inst., a *marked* copy of which was sent to us by some one, for our perusal, and it is that perusal which has inspired us again to raise our voice against this attempted perpetration of a gross injustice. It must be recollected that Col. Colt has had all the advantages which the general law can allow to a patentee. He had first a patent of fourteen years duration, which was extended for seven more, and in that twenty-one years, he has made an enormous fortune, and collected around him a force of mechanical contrivances which will enable him for many years to exercise, in a great degree, a commercial monopoly without Congressional protection. But now the Colonel asks Congress to give him by special legislation what is really not his or theirs, but what belongs to the people. The patent which *was* Col. Colt's is now no longer such, but the free property of every one; and on the faith of this, many valuable improvements on the original Colt pistol and rifle have been invented and patented, which could not however be used until the present time, because of the monopoly exercised by Col. Colt, and now these are being largely manufactured. The revolver has been cheapened, and can be reduced in price much lower, if the public is allowed to retain possession of what is legally its own.

Should Congress grant this fresh lease, it will be in direct opposition to the principles of the fathers of our country, which were to give equal chance to every man and to abolish all monopolies after the monopolists had been suitably rewarded. It would be robbing many industrious inventors, it would be cramping the manufacturing interests, to thus tolerate the claims of one man who has already been more than amply rewarded. The principle is opposed to human justice and human reason.

But a more urgent reason than this is, that the Colt pistol has become "essential to the public service," and consequently there is a large demand for them. This being the case, they should be manufactured and sold as cheaply as possible, and not monopolized by one manufactory which could charge just what it liked and bleed Uncle Sam to any extent it wished. If the public demand them, then the public should have the right of making them, when the inventor, as in this case, has been thoroughly rewarded for his invention.

At the present time there are many persons engaged in the manufacture of revolving pistols who would all be cramped, if not ruined, by the granting of this monopoly; and yet Col. Colt, with a feeling unworthy the citizen of an enlightened commonwealth, asks Congress to ruin these industrious men, and to make the government itself pay a high price for an article which it cannot do without. If Congress wishes to reward Colt, let him have a contract, but do not perpetuate or encourage this attempted imposition.

From whatever point of view you look at this application, it is either one of two things —a gross absurdity or a great injustice; and we sincerely trust that Congress will feel too much honor, and be possessed of enough common sense to prevent them from committing the one or the other, to the prejudice of the real interests of the country generally.

To return to the testimonials, we do not think that any department of the government should give its opinion or use its influence with another department, in this or any similar case, whether solicited or otherwise. The opinion of the War Department is sufficiently apparent from the fact that they contract with Col. Colt for a supply of his arms, without any additional testimony from the Secretary of War; and to say the least of it, the giving of governmental certificates in such cases is very reprehensible policy.

The Steamships of the Collins Line.

The transportation of the mails and of passengers between the United States and Great Britain was, a few years ago, divided almost entirely between two great companies, the Cunard Company, entirely English, and the Collins Company, understood to be mainly American. Great efforts were made by each to excel the other in the splendor and speed of their vessels. The former company has been under the patronage of the British, and the latter of the American government, and each nation has reserved the right to seize the ships of its respective line and convert them into war steamers in case of hostility with any other powerful nation. Great interest has been manifested by the whole world in the contest for superiority by these vessels, and it is painfull to acknowledge that the American line has at last been fairly beaten. The remaining steamers, the Atlantic, the Baltic, and the Ericsson, (formerly the caloric ship, hired to supply the deficiency occasioned by the disasters,) have been run at a loss for some time. The Adriatic, a very large new steamer, owned by this company, was badly botched in the arrangement of the engine department, as we have several times had occasion to notice during the progress of the work, and the Collins Company has become almost bankrupt. A sale at auction of all the ships of this line has been actually made, but as the purchasers are connected with Messrs. Brown Brothers & Company, who were the chief owners of the line, the property can hardly be said to have changed hands; and an ultimate sale to Russia or some other party, which has been a long time in contemplation, remains yet to be negotiated before the company can be said to have fairly abandoned the field. Meanwhile its rivals, the Cunard Company, have kept up their reputation for regularity and tolerable speed, and have extended their operations until they run screw and paddle vessels to the West Indies and other places, as well as to New York and Boston. But they do not, as they did before the organization of the Collins Company, monopolise all the best travel between the two great branches of the Anglo-Saxon family. A number of American lines run from our principal ports to the continent of Europe, stopping at English ports on the way; and these, as also the various independent lines to Glasgow and other ports, have been quite successful without special aid from either government.

There appears to have been a kind of fatality, or what is the same thing, bad management, attending the operations of the Collins line, and it is probably better that its existence be terminated, and that new enterprises be allowed to take its place. A portion of the ill success of this line has been due, no doubt, to an unfortunate contract at the commencement, by which the agent was allowed a commission on all the business transacted, whether profitable or otherwise, instead of, as should have been done, allowing a liberal per centage of the actual profits realized. A similar arrangement caused, we think, serious embarrassment to the success of one or more of our California lines at one period. If it had been rendered imperatively necessary for the Collins line to have realized a profit on each transaction before the parties in charge could have received any payment for their services, it is possible that the result of the enterprise might have been very different.

It may interest our readers to know that the sale of these steamers, whether real or nominal, was for a sum almost incredibly small, compared with the cost, and what is generally believed the actual value of the vessels. The three ships, the Atlantic, Baltic and Adriatic, were sold together, and but one bid was made. The debts of the line, as stated at the sale, amounted to about $600,000, principally on account of money advanced to the company by the Messrs. Brown, besides a lien of doubtful validity held by the Government for a failure to fulfil the stipulations of the mail contract. Purchasers were to assume these debts and this risk of forfeiture to our kind and liberal Uncle Samuel. The only bid was $50,000, offered by a relative of the Messrs. Brown; this was accepted, and the three magnificent relics of this great national struggle now stand in his name.

Poisonous Beauty.

The natural desire of all to display what personal attractions they may possess to the best possible advantage, and the pleasure which all mankind, whether civilized or savage, take in looking upon a beautiful female face, has led the weaker sex in many instances to commit violations of common sense, which cause feelings of deep regret and commiseration in the breast of every true man and woman. There is no custom so foolish and frivolous as that of painting the face, or endeavoring to obtain by artificial means an unnatural complexion; and this custom, which at first we are inclined to regard as simply childish, assumes the graver nature of a crime when we regard the means adopted to attain this silly end. For example:—Arsenic is used in great quantities to produce a healthy look, ruby lips, and rotundity of form, and we have it on good authority that in many parts of Europe, and for aught we know to the contrary, in America, arsenic is eaten in large quantities, and Dr. Tschudi, the well known traveler, says "it does not seem to have any more pernicious effect than opium eating," as if that was not bad enough! Many tuns weight of arsenic are sold annually in the form of cosmetic powders for outward application. Bismuth and antimony are also largely used in the manufacture of these articles, without which ladies do not consider their toilets complete, and much as they may abhor the character of a Borgia or Brinvilliers, they are themselves provided with weapons as dangerous as either of those two females; the difference being that one is doing all she can to poison herself, and the others poisoned their friends. It is said of a celebrated actress that she must in her life time have used half a hundred weight of oxyd of bismuth in the shape of cosmetic powders, and the pearl powders, rouges, and the whole army of so-called beautifiers, are all more or less highly poisonous. It surely cannot be right to use or encourage the use of these articles, more especially when we know that there are plenty of vegetable compounds which will answer just as well, and will not stop up the pores with poisonous metals. The Spanish ladies use a harmless cosmetic composed of almonds, and another of pistachio nuts, ground in water, and which are said to have no deleterious effects. We have not space to expatiate as fully as we would wish on the moral or the physiology of these facts, but we fulfill our duty in calling public attention to them, that the good sense of the people may rise in mutiny against painted beauty, especially when that paint carries with it the breath of poison; and we would let every one know that some ladies actually, as well as figuratively, deal out to their admirers *killing* glances.

Cisterns—Hint to Potters.

In a late communication by Mr. Smirke to the Institute of British Architects, he directed attention to cisterns for containing water, describing three different kinds as used in England. First, the hogshead sunk in the ground; second, a wooden cistern lined with sheet lead; third, the slate cistern, a vast improvement upon its predecessors, but too expensive for general adoption among the working classes. The object of Mr. Smirke was to bring to notice another material for cisterns, namely coarse earthenware of large size and low price. He had seen and measured earthenware cylinders of two feet five inches internal diameter, forming the lining of a well more than two thousand years old, amidst the ruins of ancient Selinuntum, and they were as sound as when first made. A vessel of this material, three feet square and four feet deep, would hold upwards of two hundred gallons.

Coarse earthenware would no doubt be an excellent material for cisterns, but more expensive than brick and hydraulic cement, of which the majority of cisterns in this part of America are made. It would seem, from Mr. Smirke's communication that such cisterns are unknown to him. We would recommend them to the attention of the Institute of British Architects. They are made by excavating a deep circular hole in the ground, below the reach of frost, then laying a stratum of clay or cement on the bottom, paving the floor, and raising the sides with brick, surmounting the whole with an arched roof. The outside of the side walls should be coated with hydraulic cement, or puddled round between the ground with clay, and the whole interior plastered with a thick coat of hydraulic cement. A small opening is left for the entrance water pipe, and another for the suction tube of a pump. A square mouth covered with a lid is usually made at the center of the top for admission to clean it out, or for repairs. Such cisterns, if carefully constructed, will last for centuries.

A Petrifying Stream.

There is a little stream which empties into Shasta Valley, California, which possesses the property of incrusting everything which falls into its waters with a complete coat of stone. Flowers, leaves, grass, pine buds, and things of that sort, will become completely enameled in the course of a week or so, retaining in the process their natural form.—*Exchange.*

[There are several lakes, rivers and streams in the world which petrify wood, changing it into stone, but none so rapidly as the above Californian stream, so far as we are aware. It must be very strongly charged with the carbonate of lime. There is a dropping spring at Knaresborough, England, which possesses petrifying powers nearly as great. We have seen willow baskets, birds' nests, and various curious articles, said to have been transformed into stone by this spring in the course of a few months' exposure.

A Railway in Turkey.

The first railroad in Turkey has been commenced under somewhat favorable auspices. It is to run from the port of Smyrna to the interior, a distance of 70 about miles, and will open up a rich portion of Asia Minor to direct communication with the sea trade. The engineers are English, but the stockholders are Turks; and the government has taken a lively interest in this innovation of the rail over the camel train in the land of the Moslem.

Novel Application of Science.

A man was arrested the other day in this city for stealing hens; he had first stupefied them with chloroform while at roost, and then quietly carried them off. We believe the first popular application of this same drug in England was for the same purpose. "When thieves get scientific, what should the police do?" Why, read the Scientific American.

© 1858 SCIENTIFIC AMRICAN, INC.

Molecular Impressions by Light and Electricity.

In the last number of the London *Artisan*, we find the report of a lecture on the above subject, by Prof. Grove, delivered before the Royal Society, from which we condense a few interesting extracts.

He employed the term "molecular" as signifying particles of bodies smaller than those having *sensible* magnitude. The effects of light and electricity depend upon the molecular structure of bodies subjected to their influence. Carbon, in the form of the diamond, transmits light, but stops electricity; carbon in the form of coke or graphite, into which the diamond may be transformed by heat, transmits electricity but stops heat. All solid bodies which transmit light (being transparent) are non-conductors of electricity, while all the best conductors of electricity are opaque to light. The converse of this class of interesting facts was the principal subject of the lecture, namely, the changes produced in the molecular structure of matter by light and electricity.

Euler conceived that light may be regarded as the undulation of ordinary matter, but Dr. Young, in answer to this theory, asserted that if this were the case, all bodies should be thrown into a state of molecular vibration, by the impact of light, and this was considered a formidable argument against Euler. Recent experiments, however, especially those of M. Niepce de St. Victor, go to prove that bodies are thrown into a state of molecular undulation by light falling on them. The following experiment tests the truth of this theory:—Take an engraving which has been kept in a dark room, and expose one-half of it to the sunlight, the other half being covered with an opaque screen; then take it again into a dark room, remove the opaque screen and place the whole surface in close proximity to a sheet of sensitive photographic paper, and allow it to remain thus for some hours. It will now be found that the portion of the engraving which has been exposed to the light will have reproduced itself upon the photographic paper, while no effect has been produced by the part which was covered with the screen. Paper exposed to sunlight, then quickly placed in a covered tin case, will, when set in the dark, radiate phosphorescent force through a round aperture in the lid, and produce a circular mark on photographic paper—even impressing upon it the lines of an interposed engraving.

Last autumn, while Prof. Grove was fishing at Fontenay, he observed some patches on the skin of a trout, which he was sure were not there when it was taken out of the water. The thought struck him that the cause was exposure of some parts of the fish to the sun, other parts being covered. To determine this he took the first fresh-caught trout and placed it on the ground with a green serrated leaf on each side. After an hour's exposure the fish was examined, when the well defined image of the leaf was found on the upper exposed side, but no effect was observable on the under or sheltered side of the trout.

The effect of light is not so well understood, nor so generally recognized as it should be. Light is required for the healthy growth of animals and plants. Dark rooms are not so healthy as those exposed to light. There is an invisible phosphorescence which radiates from walls and furniture, exerting a powerful tendency to produce chemical changes greatly affecting the animate world.

Electricity also produces molecular changes in bodies exposed to its action, the most familiar of which is the conversion of atmospheric air into ozone, by a succession of electrical discharges passed through it. This is a branch of science, however, regarding which much has yet to be learned—a boundless field is still open for investigation.

American Vines and Wines.

At the meetings of the Farmers' Club held at the American Institute, this city, a few good things are sometimes elicited from a great mass of trifling matters. This was the case, we think, in a recent discussion regarding the vine culture in our country. Dr. Underhill, of Croton Point, the most famous cultivator of the grape in this region, stated that the Isabella and the Catawba—both native grapes—were the most reliable for this latitude from the Atlantic to the Pacific. The great secret, he asserted, in making a vinyard is in the preparation of the ground; it must be deeply trenched and well drained, and swamp muck makes the cheapest and best manure. He trains his vines on wires strained between posts situated twenty feet apart, and has not lost a crop in twenty years, and he has a vinyard of forty-two acres.

These views were confirmed by others present. Wm. Lawton stated that many foreign varieties of grapes had been introduced under the fallacious idea that they would flourish wherever the peach could be cultivated, but all had failed. The Isabella and Catawba were the most certain, and every farmer in our country could and should raise a plentiful supply of grapes for his own family use; three vines properly treated will afford sufficient for a large family.

James C. Provost, of Green Point, L. I., detailed his method of cultivating the grape, which is certainly quite original and different from any other described in works on this subject. His land is loam, with water only a few feet underneath the surface. His vines are trained on trellises eight feet high; from one vine trained on the end of a house he had made twenty-two gallons of wine. The singular part of his method of cultivation is to allow the vines to fall over the trellises, reach down to the ground, and take root at their extremities in the soil. Some of his vines yield so richly that they appear like a mass of fruit in the fall, from the ground to the top. He trims very sparingly, spreads the manure on the surface, never disturbs the old roots and keeps the soil very loose. From three-quarters of an acre of vines, he stated that he had made more than a thousand gallons of wine. The grapes he crushed in a roller sugar mill, and to every gallon of juice one pound of sugar was added—nothing else. It takes five gallons of the pure juice of the grape to make one of brandy.

The grape vine may be profitably cultivated on lands which cannot be employed for common agricultural purposes. In a recent letter to the Patent Office, Prof. Swallow, the State geologist of Missouri, asserts that the very extensive tracts of unproductive land in Kentucky and Tennessee, known by the appellation of "The Barrens," may be converted into fruitful vinyards. He also asserts that there are twenty million acres of land in Missouri, Kentucky, and Tennessee on which the vine will succeed as well as in France or Germany.

Chiccory Cultivation.

This plant (cichorium intybus) is called by many persons "German coffee," on account of the use to which it is so extensively applied in Germany. It is very similar to the succory often found growing wild on the slaty soils of New England, and it may be profitably cultivated for home consumption, as a great quantity of it is now sold in New York and other places, all of which is imported from Europe. It is often mixed with the ground coffee sold in stores, but the Germans buy it separate and mix it with their coffee to suit themselves. When combined with coffee it has been called an *adulteration*, but this is not a correct application of the term, because it really does not impart inferior or injurious qualities to the coffee, but is by many persons considered an improvement. It at least imparts a superior taste to inferior coffee, and as it is cheaper and held to be as healthy, it should be purchased separately and mixed with coffee in quantities to suit the tastes of those who use it as a beverage. The proportions of the two used together are one of chiccory to three of coffee.

This plant is now cultivated very extensively in France, Germany, Holland, and England. It is sown and cultivated in rows, like the carrot, and the roots are taken up early in the autumn. Farmers who cultivate it on a large scale partially dry the roots and sell them to manufacturers, who roast, grind, and pack them up for sale. Those who cultivate little patches for their own family use, store the roots in their cellars, cover them with sand, take out a few as wanted, wash, cut them in slices, roast them like coffee, and then grind them.

Antiquity of Brass.

Prof. Osborn, in a lecture before the Geographical and Statistical Society, of this city, a short time since, proved very conclusively that brass was known long before the time which the German metallurgists fix for its invention—somewhere about the thirteenth century. He arrives at his facts from the analysis of coins anterior to that date, and explains how easily brass might have been made. Copper was well known in the time of Moses, and the mixture of this with any of the zinc ores which were abundant in the East, would produce brass. His idea is strengthened by the fact that Pliny and Strabo both mention the "cadma" earth and "calamine" stone, (both carbonates of zinc) as used in the production of brass. At the present time the best brass is made in the same way, namely, by fusing together copper, charcoal, and rocky carbonate of zinc, when the carbonate is decomposed and brass is the product of the fusion.

The Composition of Milk at Various Times of the Day.

Professor Boedeker has analyzed the milk of a healthy cow at various times of the day, with the view of determining the changes in the relative amount of its constituents. He found the solids of the evening milk (13 per cent) exceeding those of the morning's milk (10 per cent), while the water contained in the fluid was diminished from 89 per cent to 36 per cent. The fatty matters gradually increase as the day progresses. In the morning they amount to 2.17 per cent, at noon 2.63 per cent, and in the evening 5.42 per cent. This fact is important in a practical point of view; for while sixteen ounces of morning's milk will yield nearly half an ounce of butter, about double this quantity can be obtained from the evening's milk. The casein is also increased in the evening's milk from 2.24 to 2.70 per cent; but the albumen is diminished from 0.44 per cent to 0.31 per cent. Sugar is least abundant at midnight (4.19 per cent) and most plenty at noon (4.72 per cent). The per centage of the salts undergoes almost no change at any time of the day.—*Edinburgh Medical Review.*

Supposed Economy in Bread.

Twenty-six pounds and thirteen ounces of good bread have been made from fourteen pounds of flour and one and a half pounds of rice by the following method:—Tie up the rice in a thick linen bag, allowing it ample room to swell, boil for three or four hours until it becomes a smooth paste; mix this while warm with the flour, adding the usual quantity of yeast and salt; allow the dough to rise near the fire, and divide into loaves. It is affirmed, on high authority, that flour thus treated will yield fifty per cent more bread than by the ordinary method, but it will not give one particle more nourishment than when made by the ordinary method.

COMPLAINT.—The editor of the San Diego (Cal.) *Herald* complains that he does not receive the SCIENTIFIC AMERICAN, and expresses the fear that we are not acting "on the square" with him. Now we beg to assure Brother Ames that we have been sending our paper to him for a long time, and we cannot account for its non-appearance in his sanctum unless it be that some "scientific thief" is on the alert for the weekly dish which we intend for our editorial friend. Really it is vexing, and we will do all we can to correct the fault. It cannot, however, be laid to our door.

Laboratory—No. 4.

Affinity Illustrated.—The affinity or power of uniting one substance with another is so great, that, were it not for living plants and animals, each element of the world would soon seek out its fondest ally, and these being united, there would quickly be an end to any further chemical change of matter on the face of the earth. The vital power, however, of living plants and animals is constantly undoing what the inorganic or non-vital materials are ever consummating; the very few native or natural elements that are found by man show how this power has already done its work. Man never finds iron, phosphorus, potassium, carbon, and a host of other materials, in their primitive state, but always combined with some other of the elements; and it is his ingenuity and chemical knowledge which break them up and separate them, giving us iron for the plowshare, phosphorus for the match, and many other necessaries of civilized life. The laws of affinity are best illustrated by the events of every-day life, such as the burning of a candle, the decay of wood, the change of lime into chalk, and the rusting of iron. Tallow at the ordinary temperature has but little affinity for the oxygen in the air; it has, however, sufficient affinity for it, and gradually changes or becomes, as we say, rancid. The higher the temperature the greater is this affinity. If tallow be thrown on to hot iron, as in a frying pan, then a further change is noticed in the powerful odorous bodies produced. At a burning heat, however, the affinity of the oxygen of the air and the components of the tallow is so great that the whole disappears in invisible gases. Wood shows a similar action, according to the temperature it is exposed to. If air, wood, and water be exposed together, their natural affinities are sufficient to sap "the heart of oak" in five years; and if heated to the combustion point, this change takes place in a few minutes. If we make a paste of lime and water, and spread it on a tile, and then expose it to the air, in less than a month the carbonic acid which is in the air will unite with the lime and produce chalk. Now if vinegar be poured on this chalk an effervescence is produced by the escape of the carbonic acid; the vinegar (acetic acid) having a greater affinity for the lime than the carbonic acid, throws out the latter. Iron stone as it is dug from the mine is little else than rust (or oxyd) of iron—that is, oxygen from the air united with the metal. The smelter's business is to make the oxygen in the metallic rust unite with the coal, which it readily does at a furnace heat, and thus he shows us how he can break up that affinity which has hidden the bright metal from mortal gaze since the world began. The want of the knowledge of the laws of affinity betokens savage life; on the contrary, a thorough comprehension of affinity indicates a high state of civilization.

Where the Canary Birds come from.

There is an association in Philadelphia, composed of about thirty Germans, who aim at improving the breed of canary birds, and last month they published their thirteenth annual report. From that it appears that the bird sales in Philadelphia are confined to Germans, and amount to $40,000 annually, and three-quarters of that sum is derived from the sale of canaries. The common or original canary is of the least value, and sells at about $2 apiece; the improved kinds bring from $8 to $10 apiece, and are from Central Europe. The great majority of these birds are obtained from Belgium, where they are bred in houses by the peasants, who raise them as a pastime. They are what are called "long" and "short" breeds. Birds of the long breed are procured from Brussels, Antwerp and Dietz, where they sometimes obtain extravagant prices. Their cost depends upon the color and shape, the pure golden yellow being the most esteemed. They are only used for the purpose of breeding, and oftentimes sell for $30 a pair. The short breed is raised by the people of the Hartz mountains. Next to the Belgian, the French bird is most prized.

© 1858 SCIENTIFIC AMRICAN, INC.

Correspondents

S. H. H., of Ind.—Your method of rendering a coffin impervious to air is not new. Such a system is practicable, but experience has shown that it is not profitable.

S. T. V., of N. Y.—Howe does not and cannot claim the stitch formed by his machine. His claim is confined to the particular device for forming this stitch. One patent cannot be made to cover a result, and the mode of producing that result.

M. C., of Mass.—You inquire if a patent could be obtained for a bedstead to keep out bed bugs by having strips of zinc and copper round the legs, rails, &c, so as to get up a galvanic action. The same thing having been applied to trees to keep insects from ascending, no patent could be secured for this change of application. It is our opinion that bed bugs would not be "shocked" by this device.

S. S., of Pa.—Fine white sand mixed with plaster of Paris and alum boiled together, we think, will form an improved cement for burr stones.

S. W, B., of N. Y.—India-rubber cement would be the best for securing your rubber pump valves. It is made by cutting india-rubber into shreds, and dissolving them in naphtha or turpentine kept in a tight vessel in a warm situation, and stirred frequently for two or three days until it attains to the proper consistency.

A. & M., of Fla.—Howell's machine for handling hides, illustrated in Vol. II of the Sci. Am., was successfully operated at that time, but we have heard nothing of it for some years past.

J. L., of N. Y.—It is not necessary that a person should be able to execute the various branches of mechanical labor over which he is superintendent in order to be competent to direct in a proper manner. A good architect need not be a practical carpenter, joiner and mason. In England, as in this country, architects are usually educated to the profession, and do not rise ordinarily from mechanics. There may be many exceptions to this general rule.

G. S., of Oregon.—The Alcott concentric lathe is adapted to the turning of chair rounds. broom handles, curtain rolls, &c. Price $25.

G. B. M., of Cal.—Ditching or drain digging machines have been patented, but at present we do not know of one which we can recommend.

C. C., Jr., of Mass.—A correspondent informs us that pure metallic cobalt is sold in this city for 8 cents per grain. It can be had of J. L. Fyfe, 116 John street, this city.

W. W., of N. J.—The same power that drives an upright saw should drive a circular one doing a like amount of work. We think you may safely get a circular saw in addition to the upright one in your mill. We have never seen any published rules in regard to driving circular saws of various sizes in cutting different kinds of wood.

F. N. S., of N. Y.—The right to use a patented machine is generally embraced in the purchase, but is not absolute, as a patentee can sell the right to manufacture to one, the right to sell to another, and the use to another. The power of the patentee is absolute over these three conditions in regard to patented articles. Any person, however, who has the right to use a patented machine, it being his own, can lend its use to whom he pleases.

W. B., of Pa.—Your method of checking the speed of the Atlantic telegraph cable by means of parachutes would not be at all practicable.

D. S. M., of N. Y.—Your method of paying out the telegraph cable through a tube has been proposed to us very often before and we have been obliged to tell each proposer that it would not answer.

A. Z., of Ill.—You cannot procure a patent for an invention which did not originate with you. In all cases the inventor must apply in his own name, and the patent issue to you as his assignee,

W. W. R., of Ohio.—It is neither new nor useful to hang floats of paddle wheels on centers, like blind slats, and attach weights to one edge. For information in regard to the removal of scale from boilers, we refer you to past numbers of the Scientific American.

C. C., Jr., of Mass.—We would advise you to enter the Lawrence Scientific School at Cambridge.

S. S. R., of Texas.—We do not know of any existing patent for a hand saw, so constructed as to combine a square capable of being adjusted to any angle. The only approach to it is Gorham's patent, illustrated on page 390, Vol. XII., Sci. Am. The inch measure is permanently marked to the back of the saw blade.

N. R.. of N. C.—It is perfectly legal to assign an invention to another before the patent issues.

F. A. B., of N. Y.—The method you suggest for propelling vessels by ejecting water from cylinders arranged in their stern is not new. It has been repeatedly tried in almost every variety of form for the last twenty years, and has been always condemned.

J. McQ., of Pa.—The combination you propose for giving motion to pump pistons is not new, nor do we think it useful. Connecting the pump pistons to the walking beam by the usual connecting rods, is the simplest and best means of transmitting motion in the case you describe.

W. D., of Ind.—Presses, with notched bars on either side of the upright post of follower, to be operated upon by pawls attached to the vibrating lever, are in operation all over the country.

T. F., of Ohio.—Ice reaches a temperature in the polar regions as low as that of the atmosphere—60°. We do not know where you can find Thompson and Vaughn's treatises on solar light and heat.

J. B., of N. Y.—Rounding the bottoms of vessels designed to contain liquids, to enable them to be more readily cleaned, is an old idea. The plan of cap you suggest is also old. We will advise no inventor to make an application for a patent unless we have confidence of success.

Money received at the Scientific American Office on account of Patent Office business, for the week ending Saturday, April 17, 1858 :—

J. McC., of Ohio, $25; G. Y., of N. Y., $25; C. L. C., of Ill., $25; I. G., of N. Y., $31; W. S., of Wis., $15; G. S. M., of Ill., $30; A. E. P., of Vt., $30; J. P., of Mass., $30; G. G., of Ill., $30; D. J. W., of Ohio, $55; J. S., of N. Y., $30; L. & G., of Conn., $100; G. B. B, of Conn., $10; A. J. D., of Cal., $10; F. J. G., of N. C., $55: R. & C., of N. Y., $30; A. C., of N. Y., $30; C. P. S., of Cal., $30; M. & T., of N. Y., $30; P. C. I., of L. I., $30; J. A. St. J., of Wis., $25; L. B. S., of N. Y., $25; R. G. S., of Ill., $25; J. Y. L., of N. Y., $30; W. V., Jr., of N. Y., $30; M. & C., of Ill., $30; J. B., of Texas, $10; P. & H., of Conn., $25; H. G. D., of Ky., $55; C. W. & Co., of Pa., $25; T. H. W. & Bros., of Ga., $25; M. & H., of Pa., $35; G. W. R. S., of Va., $10; M. D. W., of Ohio, $20; W. H. R., of Fla., $55; G. R., of N. Y., $25; W. J. S., of N. Y., $25; R. G. H., of N. Y., $55; W. J. S., of N. Y., $50; E. B., of Wis., $55; H. R. W., of Ky., $30; A. McK., of N. Y., $30.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, April 17, 1858 :—

J. McC., of Ohio; G. Y., of N. Y.; C. L. C., of Ill.; D. J. W., of Ohio; D. H., of N. Y.; R. G. S., of Ill.; G. R., of N. Y.; J. A. St. J., of Wis.; L. B. S., of N. Y.; W. J. S., of N. Y.; C. W. & Co., of Pa.; P. & H., of Conn.; H. C., of R. I.; T. H. W. & Bros., of Ga.; R. G. H., of N. Y.; W. J. S., of N. Y.; E. B., of Wis.

IMPORTANT TO INVENTORS.

AMERICAN AND FOREIGN PATENT SOLICITORS.—Messrs. MUNN & CO., Proprietors of the Scientific American, continue to procure patents for inventors in the United States and all foreign countries on the most liberal terms. Our experience is of twelve years' standing, and our facilities are unequaled by any other agency in the world. The long experience we have had in preparing specifications and drawings has rendered us perfectly conversant with the mode of doing business at the United States Patent Office, and with most of the inventions which have been patented. Information concerning the patentability of inventions is freely given, without charge, on sending a model or drawing and description to this office.

Consultation may be had with the firm, between nine and four o'clock, daily, at their principal office, 128 Fulton street, New York. We have lately established a Branch Agency on the corner of F. and Seventh streets, Washington (opposite the United States Patent Office). This office is under the general superintendence of one of the firm, and is in daily communication with the Principal Office in New York, and personal attention will be given at the Patent Office to all such cases as may require it.

We are very extensively engaged in the preparation and securing of patents in the various European countries. For the transaction of this business we have offices at Nos. 66 Chancery Lane, London; 29 Boulevard St Martin, Paris; and 26 Rue des Eperonniers, Brussels. We think we may safely say that three-fourths of all the European patents secured to American citizens are procured through our Agency.

Circulars of information concerning the proper course to be pursued in obtaining patents through our Agency, the requirements of the Patent Office, &c., may be had gratis upon application at the principal office or either of the branches.

Communications and remittances should be addressed to
MUNN & COMPANY,
No. 128 Fulton street, New York.

The annexed letter from the late Commissioner of Patents we commend to the perusal of all persons interested in obtaining patents :—

Messrs. Munn & Co.—I take pleasure in stating that while I held the office of Commissioner of Patents, more than one-fourth of all the business of the office came through your hands. I have no doubt that the public confidence thus indicated has been fully deserved, as I have always observed, in all your intercourse with the Office, a marked degree of promptness, skill, and fidelity to the interests of your employers.
Yours, very truly, CHAS. MASON.

MACHINERY.—IF YOU WANT THE BEST Portable or Stationary Steam Engines, Woodworth's or Daniels' Planers, or any other kind of machinery for working wood for the least amount of money, address HARRISON FLINT, Danbury, Conn.

SALE AND MANAGEMENT OF PATENTS. Eighty-four pages closely printed on fine white paper and neatly bound. Price $1. CORNWALL BROTHERS, Hartford, Conn.

A GREAT OFFER.—FOR $1 WE WILL SEND two copies of the long established and popular pictorial monthly, The United States Journal one year, or one copy and any 50 cent book that shall be ordered. We will also send in addition to these, as a premium, a copy of that large and celebrated steel plate engraving, The Signing of the Death Warrant of Lady Jane Grey, or instead of the engraving, a superb Gold Stone Breast Pin for either lady or gentleman. We will also send with these, specimens of the journal, and a catalogue of our books, embracing over 1,000 of the most popular works of the day, which will enable the receiver, in a short time, to form a club for the Journal and for books, either or both, that will secure a magnificent Gold Watch or some other premium of equal value.
J. M. EMERSON & CO., Publishers,
406 Broadway, N. Y.

WATER WHEELS!—WATER WHEELS! We are now manufacturing Vandewater's Improved Jonval Turbine Water Wheel, for mills and factories of every description, and all those wishing to improve their water power, will find it for their interest to address us by letter, stating the number of feet head and fall, their usual amount of water, the kind of machinery to be driven, we will then give them the price of wheel, or what we will furnish wheel and principal gear for, warranted to do a certain amount of work. Time given to test the wheel, and if it does not come up to our figure, the wheel and gear to be delivered to us at the purchasers mill. Reference given and required. Millwrights wanted in different counties of Virginia and North Carolina as agents for selling and putting in wheels, to whom a liberal per centage will be given.
HEATH & STEVENSON,
Laurel Factory, Prince Georges Co., Md.

MACHINERY.—THE NEW YORK STEAM Saw Mill and Machine Co., manufacture and furnish machinery of all kinds, including the celebrated Combination Portable Steam Saw Mills, Engines, portable and stationary, and of all sizes, Shingle Mills, Planing Machines, &c., &c. Our extensive manufacturing facilities enable us to furnish machinery of the best character and far below the usual prices. Every machine is guaranteed. We shall on the 1st of May open large and splendid show rooms at 406 Broadway, in which will be exhibited specimens of our own, and other machines from the different establishments of the country which will be offered for sale by us. For full particulars address
WM. MONTGOMERY, President,
371 Broadway, New York.

NEW SAW-GUMMING MACHINE, FOR Re-toothing Circular and Mill Saws, &c.—This machine, as represented in our catalogue, is entirely of wrought and cast iron; it is of sufficient power to re-tooth with ease the thickest and largest saw made. Our catalogue gives a further description, and will be forwarded on application. R. HOE & CO.,
29 and 31 Gold st., New York.

LATHE CHUCKS—WE WOULD CALL THE attention of machinists to a Geared Screw Chuck we are manufacturing, which is warranted to be superior to any in use. We are also building a Car Wheel Chuck, which can be fitted true to any sized face plate or boring table with ease. For list of sizes, testimonials, cuts, &c., address E. HORTON & SON, Windsor Locks, Conn.

FOR SALE—RIGHTS IN TWO PATENTS FOR Steam Engine improvements, being a valuable variable cut-off, and practical direct connection of piston rods with crank, effecting great saving in construction and fuel. Interests given to capitalists. Inquire of B. ACKERMANN, 710 Broadway, New York.

TWO LARGE VENEER SAWS—BUILT IN the most thorough manner, and in good running order, will be sold very low. For particulars, address DANA JONES, care of T. C. Kimball, 266–267 West Washington Market, New York.

MACHINE SHOP AND FOUNDRY FOR Sale at Louisville, Ky.—With the best stock of engine, pulley and gearing patterns in the city. The Finishing Shop has 12,000 square feet of room, with one large horizontal boring mill for cylinders, two vertical boring mills, turns 6½ and 8 feet, one double-headed lathe, 36 feet bed, swings 40 inches, one double-headed lathe, 21 feet bed, swings 33 inches, seven small slide lathes, turns 3 to 12 feet, one planer, 12 by 3 feet square, one compound planer with circular attachment, three wood-turning lathes, three drill presses, one gear cutter, bolt cutter, vises, and a large assortment of small tools to expedite work. Foundry has 3,500 feet molding floor, with every facility. Blacksmith Shop has six forges, with requisite tools for a jobbing shop. Buildings are of brick, and none over five years old. Having made a conditional sale of the patterns and flasks, will sell the buildings and any portion of the tools, separately or together. Parties who might wish to engage in the same business, or convert it into an agricultural machine shop, can seldom meet with such an opportunity to get a bargain. Apply to or address, E. A. GARDNER, assignee of LAWSON & PEARCE.

CORLISS' PATENT STEAM ENGINES—About 250, most of them from 40 to 400 horse power, are now in operation. On application, pamphlets will be sent (by mail), containing statements of responsible manufacturing companies where these engines have been furnished, for the saving of fuel, in periods varying from 2¼ to 5 years. Boilers, shafting, and gearing.
CORLISS STEAM ENGINE CO.,
Providence, R. I.

PEA SHELLING MACHINE.—PATENTED by W. J. Stevenson, March 30, 1858. This machine is admirably adapted to the use of hotels, dining saloons, boarding houses, private families, pea growers, and pea preservers. State rights for sale. Address the patentee at No. 438 Third avenue, New York City.

C. HECKMANN, MANUFACTURER OF MACHINERY—Of brass, copper, and iron wares, at Hamburg, Germany, recommends himself for the manufacture of steam boilers, Roberts' apparatus, machiney and apparatus for sugar refineries, breweries and distilleries, of the most approved constructions; also for the whole planning of any factory with drawings and mountings. All orders will be executed with promptness and on the cheapest terms. Inquiries must be made prepaid.

WELL'S PATENT SINGLE AND DOUBLE CIRCULAR SAW MILLS, with simultaneous and independent hand and self setting head blocks and patent friction feed, universally admitted the best mills extant for manufacturing lumber. Self-acting shingle and lath machines, jointers, saw mandrels with Weil's patent self-adjusting boxes. Saw tables, saw-sets and swages manufactured by H. WELLS & CO., Florence, Mass.

ANOTHER WONDER—BALDWIN'S TURbine Water Wheel (represented in No. 51, Volume XII, Sci. Am.,) gives from 75 to 97 per cent of power, according to the size of wheel and head employed. Usual sizes, with 4 to 25 feet fall, give 80 to 90 per cent. For information address S. K. BALDWIN, Laconia, N. H.

SAMUEL McELROY, CIVIL ENGINEER—Late U. S. Naval and Civil Engineer. Special attention paid to water-works with pumping power. Address "Engineer's Office," Water-works, Brooklyn, Long Island.

MACHINIST.—A WORTHY MACHINIST IN this city has been out of employ for five months by the failure of his former employer and the hard times. He is anxious to get a situation; has a small family depending upon him; is a competent hand. Address MR. HILL, care S. H. Wales, at Scientific American office.

PECK'S PATENT DROP PRESS—FOR Jewelers, tin and copper workers, gun and other forgings, &c., manufactured by the patentee, MILO PECK & CO., New Haven, Conn.

MAGIC LANTERNS—WITH A LARGE ASsortment of Scriptural, Astronomical and Temperance sliders. Our priced and descriptive catalogue of lanterns and sliders furnished gratis on application, and sent by mail free of charge to all parts of the United States. McALLISTER & BROTHER,
(Established 1796), 728 Chestnut st.,
Philadelphia.
Microscopes, Spy Glasses, Barometers, Rain Gages, Stereoscopes, Mathematical Instruments, &c.

PORTABLE STEAM ENGINES.—S. C. HILLS, 12 Platt street, New York, offers for sale these Engines, with Boilers, Pumps, Heaters, etc., all complete, suitable for printers, carpenters, farmers, planters, &c. A 2½ horse can be seen in store; it occupies a space 5 by 3 feet; weight, 1,500 lbs.; price $240. Other sizes in proportion.

CLOCKS—TOWN CLOCKS OF ALL SIZES, Regulators and Timepieces for all purposes. Dials for illuminating. VOSBURGH & CO., Agents, No. 26 Liberty street, New York. JOHN SHERRY, Manufacturer, Sag Harbor, N. Y.

SWISS DRAWING INSTRUMENTS—A full stock of these celebrated instruments always on hand. C. T. AMSLER, (formerly Amsler & Wirz,) Philadelphia, Pa.

READ—NEW CATALOGUE, (FOURTH EDITION), with two hundred and fifty illustrations of Mathematical, Optical and Philosophical Instruments, and attachment of a large illustrated sheet, representing the Swiss instruments in their actual size and shape, will be delivered, on application, to all parts of the United States, by sending 12 cents in postage stamps or money, which amount will be deducted from the bill, if an order is sent. C. T. AMSLER,
No. 635 Chestnut st., Philadelphia, Pa.

STEAM ENGINES, STEAM BOILERS, Steam Pumps, Saw and Grist Mills, Marble Mills, Rice Mills, Quartz Mills for gold quartz, Sugar Mills, Water Wheels, Shafting and Pulleys. The largest assortment of the above in the country, kept constantly on hand by WM. BURDON, 102 Front street, Brooklyn, N. Y.

HARRISON'S 30 INCH GRAIN MILLS—Latest Patent.—A supply constantly on hand. Price $200. Address New Haven Manufacturing Co., New Haven, Conn.

CHURCH AND REGULATOR CLOCKS, models, engravers' ruling machines that work themselves, and light work done at low prices, at J. STOKELL'S Clock Factory, No. 26 Platt street, New York.

THE WORKS OF THE AUBIN GAS CO., (General Office, No. 44 State st., Albany, N. Y.,) as now perfected, are adapted to all materials and localities, and are in successful operation in villages, factories, and private dwellings. For full information as to cost, probable income of public works, &c., apply as above. For plans, &c., see Scientific American of March 13th.

ALCOTT'S CONCENTRIC LATHE—THIS Lathe is capable of turning under 2 inches in diameter with only the trouble of changing the dies and patterns to the size wanted. It will turn smooth over swells or depressions of ¾ to the inch, and works as smoothly as on a straight line, and does excellent work. Price $25, (without frames,) boxed, and shipped with directions for setting up. For sale by MUNN & CO., 128 Fulton street, New York City.

SECOND-HAND MACHINISTS' TOOLS—Consisting of 20 Engine Lathes, 9 Iron Planers, 4 Upright Drills, Hand Lathes, Chuck Lathe, Gear Cutters and Vices, all in good order, and for sale low for cash. For particulars, address FRANKLIN SKINNER, 14 Whitney avenue, New Haven, Conn.

MACHINE BELTING, STEAM PACKING, ENGINE HOSE.—The superiority of these articles, manufactured of vulcanized rubber, is established. Every belt will be warranted superior to leather, at one-third less price. The Steam Packing is made in every variety, and warranted to stand 300 degs. of heat. The hose never needs oiling, and is warranted to stand any required pressure; together with all varieties of rubber adapted to mechanical purposes. Directions, prices, &c., can be obtained by mail or otherwise, at our warehouse. NEW YORK BELTING AND PACKING COMPANY. JOHN H. CHEEVER, Treasurer, No. 6 Dey street, New York.

NEW HAVEN MANUFACTURING CO.—Machinists' Tools, Iron Planers, Engine and Hand Lathes, Drills, Bolt Cutters, Gear Cutters, Chucks, &c., on hand and finishing. These tools are of superior quality, and are for sale low for cash or approved paper. For cuts giving full description and prices, address "New Haven Manufacturing Co., New Haven, Conn."

ENGRAVING ON WOOD AND MECHANICAL DRAWING, by RICHARD TEN EYCK, Jr., 128 Fulton street, New York, Engraver to the Scientific American.

SOMETHING USEFUL FOR MACHINISTS and Operatives of Machinery.—Simmon's Decimal Chart, for finding the size of wheels and pulleys for any required number of revolutions per minute—a great saving of time and lengthy calculations. Sent free for one dollar. D. G. SIMMONS,
346 West 27th street, New York.

J. A. FAY & CO., WORCESTER, MASS., build the best Planer and Matcher in use, with wrought iron cylinder and Fitt's patent feed works. Ask all machinery agents for Fay & Co.'s "Bay State Planer," or address as above.

STEAM WHISTLES—IMPROVED PATterns manufactured by HAYDEN, SANDERS & CO., 306 Pearl street, New York.

WOODWORTH PLANING MACHINES.—Having over $40,000 worth now completed, I will sell, from this time henceforth, at a very reduced price, and am ready to construct any sizes not on hand at short notice. JOHN H. LESTER,
57 Pearl st., Brooklyn, Long Island.

LAP-WELDED IRON BOILER TUBES—Prosser's Patent.—Every article necessary to drill the tube-plates and set the tubes in the best manner.
THOS. PROSSER & SON, 28 Platt st., New York.

SAWS.—HOE & CO.'S PATENT GROUND SAWS Plastering Trowels, &c., can be had, wholesale and retail, at the principal hardware stores, at the salesrooms of the manufacturers, 29 and 31 Gold street, or at the works corner of Broome, Sheriff and Columbia sts., New York. Illustrated catalogues, containing prices and information interesting to sawyers generally, will be sent by post on application.

OIL! OIL! OIL!—FOR RAILROADS, STEAMERS, and for machinery and burning. Pease's Improved Machinery and Burning Oil will save fifty per cent., and will not gum. This oil possesses qualities vitally essential for lubricating and burning, and found in no other oil. It is offered to the public upon the most reliable, thorough and practical test. Our most skillful engineers and machinists pronounce it superior and cheaper than any other, and the only oil that is in all cases reliable and will not gum. The Scientific American, after several tests, pronounced it "superior to any other they have ever used for machinery." For sale only by the inventor and manufacturer. F. S. PEASE, 61 Main st., Buffalo, N. Y.
N. B.—Reliable orders filled for any part of the United States and Europe.

VAIL'S SPEEDWELL IRON WORKS, Morristown, N. J., manufacture Craig's Patent Double-acting Balance Valve Oscillating Steam Engines both stationary and portable, Knowles' Patent Muley, Portable, Gang and Re-sawing Mills, Sugar and Chinese Cane Mills and Sugar Pans, Grist Mills, Mill Irons, Rich's Water-wheels, Forgings and Castings. Orders for the above, and all descriptions of labor-saving machinery will receive prompt attention.
JOHN H. LIDGERWOOD & CO.,
No. 9 Gold street, New York.

SWISS DRAWING INSTRUMENTS—A full stock of these celebrated instruments always on hand. Catalogue, 4th edition, with 250 illustrations of Mathematical, Optical and Philosophical instruments, and attachment of illustrated sheet representing the Swiss instruments in the actual size and shape, will be delivered, on application, to all parts of the United States, by sending 12 cents in postage stamps. Address C. T. AMSLER, 635 Chestnut st., Philadelphia, Pa.

WOODWORTH IMPROVED—TWO GOLD Medals have been awarded to me for my patented improvements upon the celebrated Woodworth Planing Machine. The above awards, and the large number of these machines now in operation, fully demonstrate their great superiority over all others. Machines of all sizes constantly for sale.
JAMES A. WOODBURY,
69 Sudbury st., Boston, Mass.

© 1858 SCIENTIFIC AMRICAN, INC.

Science and Art.

New Alloy for Sheathing Ships.

A patent has recently been taken out in England by Mr. Arthur Wall, of London, for a combination of metals possessing different electric characters for the sheathing of ships. The alloy is made by melting two and a half parts of copper in one crucible; in another nine parts of zinc, eighty-seven of lead, one part of mercury, and a half a part of bismuth; then mixing the contents of both crucibles, covering the surface with charcoal dust, and stirring well until all are incorporated. It is stated that the mercury in this alloy protects both the zinc and copper from the action of sea water. The contents of the crucible are run into ingots, and rolled into sheets.

The same inventor has also obtained a patent for protecting the bottoms of iron ships from the action of sea water, by the use of a composition of litharge made into a smooth thin paste with turpentine, to which is added an equal weight of resin. The whole is then put into a close iron vessel placed over a fire, naphtha added through an aperture in the lid from time to time, and the boiling kept up slowly for about two days, until the whole has assumed a tenacious adhesive character and a creamy consistency. It is then fit to be applied to the iron of the vessel as a primary coating. A second coating is given to the iron with a composition of resin, combined with one-fifth of its weight of an oxyd of mercury and powdered charcoal mixed in turpentine. This outer coating fills up all cracks or gaps left in the first application, and the nature of the composition is stated to be such that it prevents barnacles adhering to the iron, and resists the corroding action of salt water. The protection of the bottom of iron ships is a matter of great consequence in Great Britain where there are so many built, but is not of so much importance here at present, yet it is of some consequence to us also, as we have a few iron vessels, and the probability is that their number will always keep increasing.

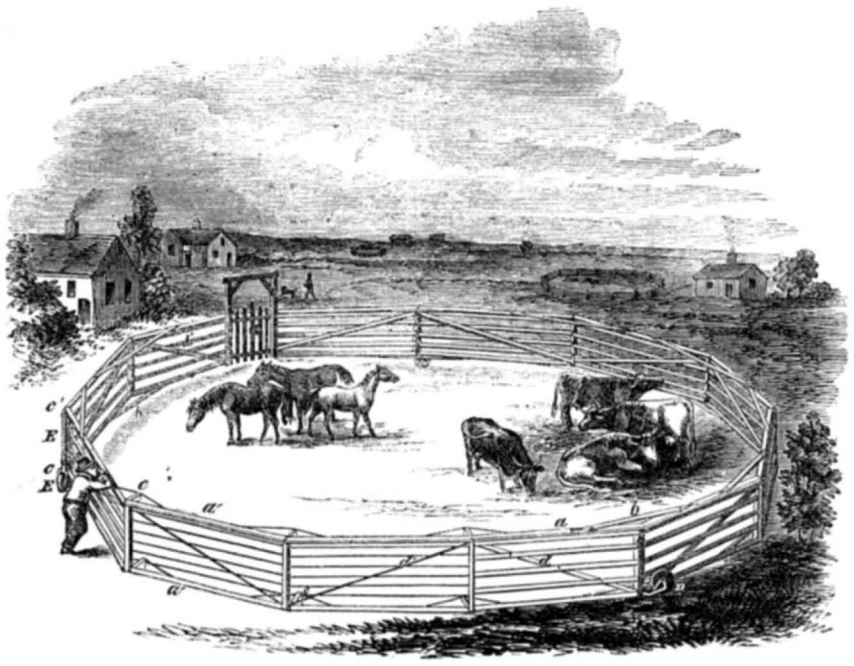
Improved Portable Fence.

The importance of any improvement in fences can be appreciated when we think of the vast amount of time and labor required in building and repairing fences in our rural districts, which consume a great quantity of timber. It is said that in Pennsylvania alone there are fences to the value of a hundred million dollars, and keeping them in repair costs annually ten million dollars. In the West the expense of fences is proportionately greater, and many plans have been tried to avoid fencing. Within the last few years many portable fences have been patented, and the subject of our engraving is one of these, the object of which is to provide for more easily moving the fence, and to render the use of other fences unnecessary. This fence is put up in strong, light pens of circular or polygonal form, of any size desired, as seen in the perspective view of the fence fixed on the prairie. It is braced so that it can be raised off the ground and supported by three or more wheels, on which it may be moved altogether in any direction to the spot selected, and there, by simply ungearing the wheels, it will rest firmly in the spot where it is fixed. It can be constructed either of boards, wire, or strap iron. The engravings show a pen made half of iron and half of boards, and illustrate the construction of each, which is nearly the same, only it is found that the boards are too heavy when there are more than nine or twelve panels, but when made of wire or strap iron it may be much larger and more easily moved. If made of boards the posts are three cornered, and the boards are nailed on the inside of a post at one end, and on the outside of the next post, so that the boards reach clear across the post, and the posts can be quite small without any danger of splitting from the nails.

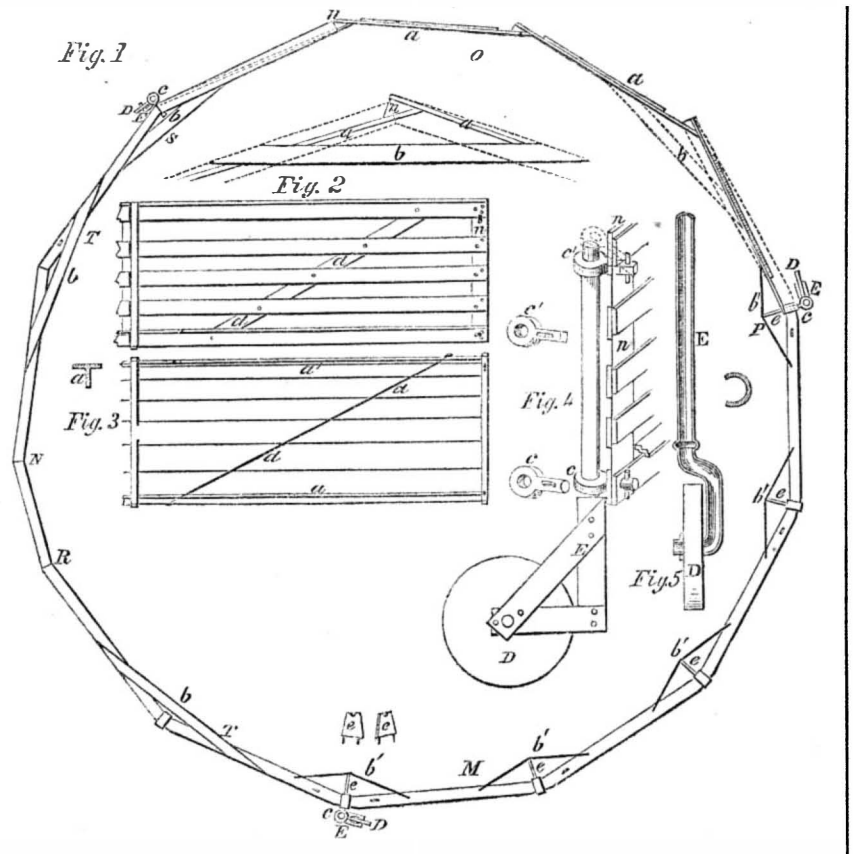
Fig. 1 is a top view of the fence. Figs. 2 and 3 show a panel respectively of iron and wood. Figs. 4 and 5 show the method of attaching the wheels. Similar letters refer to similar parts in each.

On the top of the top board (when made of wood) there is nailed a cap board, *a*, seen in cross section near Fig. 3, having a T-shape,

HOGE'S PORTABLE PRAIRIE FENCE.



between the wheels, D. When constructed of iron the rails, *a'*, can be made of two boards, forming a T-shaped rail, or a square piece mortised into the posts, and connected together by the braces, *b'*, which are held out from the posts by the blocks, *e*, that serve to make the connection more substantial than when the braces are straight. The brace, *d*, serves the same purpose as in Fig. 2. G is a small gate for taking stock in and out. It will be seen from the arrangement of these ties and braces that the panels are perfectly rigid and firm, and cannot drop between the wheels. The wheels, D, are attached to crooked levers, E, which pass through an eye, *c*, secured in a round hole at the bottom of the post, so that the lever, E, may be used to raise up the fence; and when the end of E is turned up parallel



with the fence, it can be hitched into another eye, *c'*, at the top and held fast by it in a vertical position as seen at Fig. 4; so that when the lever is up, the fence rests on the wheels, and when the lever is down, the fence rests on the ground. The lever, E, is made crooked like a castor, so that it can turn round and allow the fence to be moved in any direction; it can be made of corrugated iron Fig. 5, or wood, Fig. 4, as experience may dictate; *n* is the end post of the panels, and S T N R T show the portion of the fence made of wood, M to P the portion made of strap iron, and P O S the portion made of wire.

It will be seen that this fence does not damage or take up any land, and it can be shifted from pasturage to pasturage without moving the cattle, as the farmer may find it convenient. The method of confining cattle in a limited pasture has been found to improve the land and crops without any detriment to the cattle, and for such and other purposes any farmer will see the manifold advantages of this fence. It is the invention of Thomas Hoge, of Waynesburg, Pa., and was patented by him on Dec, 9th, 1856. We should consider this fence specially important in prairie land at the West. He will be happy to furnish any additional particulars.

We are informed that the fresh juice of honeysuckle rubbed on the part stung by a bee, instantly removes the pain.

The Coal of Western Virginia.

From a long article on this subject in the *Lynchburg Weekly Virginian* we glean the following valuable information, which tends more and more to show that the mineral wealth of our country is greater than any other in the world:—From what has already been discovered, it has been calculated that there is enough coal in this section of the country to supply the whole Mississippi valley with fuel for a thousand years, and fresh discoveries are being made in the Kanawha valley every day. All the coal yet discovered there is of a superior quality, both bituminous and cannel, and when the navigation is made more easy, and capital has turned its attention to that quarter, we have no doubt that coal from this region will find its way to every city in the Union, for it has already made its appearance in the Cincinnati market.

Steam Fire Engines.

We perceive by an exchange that the insurance companies of St. Louis have just determined to purchase two new steam fire engines, they having become satisfied regarding the superiority of such fire-extinguishers by the operation of two which have been used for some time in that city. In Cincinnati steam fire-engines are now exclusively employed, and Chicago has either one or two. Our Eastern corporations are rather foggy on this subject.

The first woolen mill on the Pacific Coast has been set in operation in Salem, Oregon. It runs four hundred and eighty spindles.

MECHANICS

INVENTORS, MANUFACTURERS, AND FARMERS.

THIRTEENTH YEAR!

PROSPECTUS OF THE

SCIENTIFIC AMERICAN.

This work differs materially from other publications, being an Illustrated Periodical, devoted to the promulgation of information relating to the various Mechanical and Chemical Arts, Manufactures, Agriculture, Patents, Inventions, Engineering, Mill Work, and all interests which the light of Practical Science is calculated to advance.

Every number of the SCIENTIFIC AMERICAN contains eight pages of reading matter, abundantly illustrated with from five to eight Engravings—all of which are expressly engraved for this publication.

All the most valuable patented discoveries are delineated and described in its issues, so that, as respects inventions, it may be justly regarded as an *Illustrated Repertory*, where the inventor may learn what has been done before him in the same field which he is exploring and where he may bring to the world a knowledge of his own achievements.

Reports of American Patents granted are also published every week, including Official Copies of all the Patent Claims. These Patent Claims are furnished from the Patent Office Records expressly for this paper, and published in the SCIENTIFIC AMERICAN *in advance of all other publications.*

Mechanics, Inventors, Engineers, Chemists, Manufacturers, Agriculturists, and people in every profession of life, will find the SCIENTIFIC AMERICAN to be of great value in their respective callings. Its counsels and suggestions will save them hundreds of dollars annually, besides affording them a continual source of knowledge, the value of which is beyond pecuniary estimate. Much might be added to this Prospectus, to prove that the Scientific American is a publication which every Inventor, Mechanic, Artisan, and Engineer in the United States should patronize; but the publication is so thoroughly known throughout the country that we refrain from occupying further space.

Southern, Western and Canadian money or Post Office stamps, taken at par for subscriptions. Canadian subscribers will please to remit twenty-six cents extra on each year's subscription, to pre-pay postage.

TERMS OF SUBSCRIPTION—Two Dollars a Year, or One Dollar for Six Months.

CLUB RATES.

Five Copies, for Six Months.....$4
Ten Copies, for Six Months.....$8
Ten Copies, for Twelve Months.....$15
Fifteen Copies, for Twelve Months.....$22
Twenty Copies, for Twelve Months.....$28

For all clubs of Twenty and over, the yearly subscription is only $1 40. Specimen copies will be sent gratis to any part of the country.

MUNN & CO., Publishers and Patent Agents,
No. 128 Fulton street, New York.

© 1858 SCIENTIFIC AMRICAN, INC.